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ARMY ELECTRONICS COMMAND WHITE SANDS MISSILE RANGE N--ETC F/G 4/2  
METEOROLOGICAL DATA REPORT. 14821A LANCE MISSILE NUMBER 3296, R--ETC(U)  
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⑥ METEOROLOGICAL DATA REPORT .

14821A LANCE  
MISSILE NO. 3296, ROUND NO. 303 APT  
(10 NOVEMBER 1977)

Number Number

WSMR METEOROLOGICAL TEAM

⑪ Nov-77

⑫ 35 p.

⑭ DR-950

⑯ 1T665702D127

ATMOSPHERIC SCIENCES LABORATORY  
WHITE SANDS MISSILE RANGE, NEW MEXICO

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| 20. ABSTRACT (Continue on reverse side if necessary and identify by block number)<br>→ Meteorological data gathered for the launching of 14821A Lance,<br>Missile Number 3296, Round Number 303 APT, are presented in tabular form. ↗ |                       |  |

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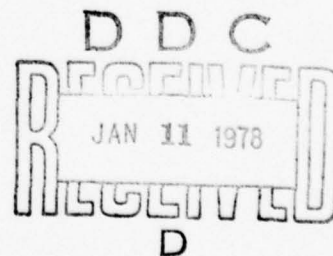
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#### INTRODUCTION

14821A Lance, Missile Number 3296, Round Number 303 APT, was launched from LC-39, White Sands Missile Range (WSMR), New Mexico, at 1215 HRS MST, 10 November 1977. The scheduled launch time was 1215 HRS MST.

#### DISCUSSION

Meteorological data were recorded and reduced by the WSMR Meteorological Team, Atmospheric Sciences Laboratory (ASL), WSMR, New Mexico. The data are presented in the following tabulations.

|                   |       |                   |
|-------------------|-------|-------------------|
| ELEVATION         | 4,064 | FEET/MSL          |
| PRESSURE          | 354.2 | MBS               |
| TEMPERATURE       | 15.8  | °C                |
| RELATIVE HUMIDITY | 25    | %                 |
| DEW POINT         | -4.2  | °C                |
| DENSITY           | 1.2   | GM/M <sup>3</sup> |
| WIND SPEED        | 08    | MPH               |
| WIND DIRECTION    | 330   | DEGREES           |
| CLOUD COVER       | CLEAR |                   |

TABLE 1. SURFACE OBSERVATIONS TAKEN AT LC-39, 1215 HRS MST/10 NOVEMBER 1977.

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| HEIGHT<br>(FEET) | DIRECTION<br>(DEGREES) | SPEED<br>(MPH) | HEIGHT<br>(FEET) | DIRECTION<br>(DEGREES) | SPEED<br>(MPH) |
|------------------|------------------------|----------------|------------------|------------------------|----------------|
| SUR              | 330                    | 7.0            | 2100             | 358                    | 13.5           |
| 100              | 270                    | 0.5            | 2200             | 357                    | 13.0           |
| 200              | 270                    | 0.5            | 2300             | 360                    | 17.5           |
| 300              | 270                    | 0.5            | 2400             | 353                    | 12.0           |
| 400              | 006                    | 2.0            | 2500             | 356                    | 15.5           |
| 500              | 005                    | 7.5            | 2600             | 355                    | 15.0           |
| 600              | 001                    | 9.5            | 2700             | 355                    | 14.0           |
| 700              | 357                    | 11.5           | 2800             | 360                    | 16.5           |
| 800              | 003                    | 11.5           | 2900             | 352                    | 12.0           |
| 900              | 004                    | 14.0           | 3000             | 348                    | 11.5           |
| 1000             | 003                    | 11.0           | 3100             | 349                    | 13.0           |
| 1100             | 005                    | 11.5           | 3200             | 343                    | 9.5            |
| 1200             | 003                    | 10.5           | 3300             | 341                    | 12.5           |
| 1300             | 002                    | 10.5           | 3400             | 344                    | 17.5           |
| 1400             | 360                    | 10.0           | 3500             | 346                    | 20.5           |
| 1500             | 360                    | 9.0            | 3600             | 347                    | 16.0           |
| 1600             | 351                    | 8.0            | 3700             | 336                    | 12.5           |
| 1700             | 347                    | 10.5           | 3800             | 335                    | 14.0           |
| 1800             | 351                    | 12.0           | 3900             | 319                    | 10.0           |
| 1900             | 355                    | 16.0           | 4000             | 321                    | 8.0            |
| 2000             | 356                    | 14.0           | 4100             | 317                    | 9.0            |

TABLE II. PILOT-BALLOON-MEASURED WIND DATA, RELEASE NO. 1  
RELEASED FROM LC-39, AT 1205 HRS MST/10 NOV. 1977  
14821A LANCE, MISSILE NO. 3296, ROUND NO. 303 APT

PIBAL RELEASE POINT WSTM COORDINATES:

X = 530,938.82    Y = 186,564.96    Z = 4,063.75

APPROXIMATELY: 2 MILES NORTH OF LAUNCHER

NOTE: WIND DIRECTION DATA ARE REFERENCED TRUE NORTH.

| HEIGHT<br>(FEET) | DIRECTION<br>(DEGREES) | SPEED<br>(MPH) |
|------------------|------------------------|----------------|
| 4200             | 328                    | 12.0           |
| 4300             | 332                    | 14.0           |
| 4400             | 323                    | 12.5           |
| 4500             | 326                    | 11.5           |
| 4600             | 318                    | 10.5           |
| 4700             | 308                    | 8.5            |
| 4800             | 307                    | 8.5            |
| 4900             | 294                    | 5.5            |
| 5000             | 271                    | 6.5            |
| 5100             | 283                    | 5.5            |
| 5200             | 278                    | 6.0            |
| 5300             | 303                    | 5.5            |
| 5400             | 299                    | 6.0            |
| 5500             | 290                    | 7.0            |
| 5600             | 309                    | 7.0            |

| HEIGHT<br>(FEET) | DIRECTION<br>(DEGREES) | SPEED<br>(MPH) |
|------------------|------------------------|----------------|
| 5700             | 319                    | 7.5            |
| 5800             | 314                    | 8.0            |
| 5900             | 313                    | 8.0            |
| 6000             | 330                    | 11.0           |
| 6100             | 333                    | 11.0           |
| 6200             | 337                    | 5.0            |
| 6300             | 324                    | 7.0            |
| 6400             | 329                    | 9.5            |
| 6500             | 338                    | 10.5           |
| 6600             | 331                    | 10.5           |
| 6700             | 327                    | 10.5           |
| 6800             | 323                    | 7.0            |
| 6900             | 330                    | 10.5           |
| 7000             | 322                    | 10.0           |
| 7100             | 321                    | 9.0            |

TABLE II. (CONT)

NOTE: WIND DIRECTION DATA ARE REFERENCED TRUE NORTH.

| HEIGHT<br>(FEET) | DIRECTION<br>(DEGREES) | SPEED<br>(MPH) | HEIGHT<br>(FEET) | DIRECTION<br>(DEGREES) | SPEED<br>(MPH) |
|------------------|------------------------|----------------|------------------|------------------------|----------------|
| SUR              | 330                    | 7.0            | 2100             | 354                    | 13.0           |
| 100              | 270                    | 0.0            | 2200             | 357                    | 16.0           |
| 200              | 355                    | 8.0            | 2300             | 359                    | 18.5           |
| 300              | 357                    | 11.5           | 2400             | 360                    | 16.0           |
| 400              | 001                    | 9.5            | 2500             | 356                    | 18.5           |
| 500              | 007                    | 9.5            | 2600             | 354                    | 17.5           |
| 600              | 004                    | 8.0            | 2700             | 353                    | 13.5           |
| 700              | 357                    | 7.0            | 2800             | 352                    | 14.0           |
| 800              | 358                    | 9.0            | 2900             | 352                    | 12.5           |
| 900              | 357                    | 11.5           | 3000             | 348                    | 14.5           |
| 1000             | 357                    | 12.0           | 3100             | 349                    | 14.0           |
| 1100             | 356                    | 11.0           | 3200             | 342                    | 11.5           |
| 1200             | 355                    | 12.0           | 3300             | 343                    | 14.0           |
| 1300             | 354                    | 11.0           | 3400             | 339                    | 14.5           |
| 1400             | 353                    | 10.5           | 3500             | 345                    | 15.5           |
| 1500             | 355                    | 9.0            | 3600             | 336                    | 11.0           |
| 1600             | 358                    | 6.0            | 3700             | 341                    | 11.5           |
| 1700             | 356                    | 8.5            | 3800             | 333                    | 11.5           |
| 1800             | 356                    | 10.5           | 3900             | 325                    | 11.5           |
| 1900             | 352                    | 10.0           | 4000             | 322                    | 11.0           |
| 2000             | 353                    | 10.5           | 4100             | 318                    | 9.5            |

TABLE III. PILOT-BALLOON-MEASURED WIND DATA, RELEASE NO. 2  
RELEASED FROM LC-39, AT 1215 HRS MST/10 NOV. 1977  
14821A LANCE, MISSILE NO. 3296, ROUND NO. 303 APT

PIBAL RELEASE POINT WSTM COORDINATES:

X = 530,938.82 Y = 186,564.96 Z = 4,063.75

APPROXIMATELY: 2 MILES NORTH OF LAUNCHER.

NOTE: WIND DIRECTION DATA ARE REFERENCED TRUE NORTH.

| HEIGHT<br>(FEET) | DIRECTION<br>(DEGREES) | SPEED<br>(MPH) | HEIGHT<br>(FEET) | DIRECTION<br>(DEGREES) | SPEED<br>(MPH) |
|------------------|------------------------|----------------|------------------|------------------------|----------------|
| 4200             | 318                    | 10.0           | 6600             | 323                    | 8.0            |
| 4300             | 318                    | 11.0           | 6700             | 288                    | 6.5            |
| 4400             | 330                    | 13.0           | 6800             | 326                    | 7.0            |
| 4500             | 325                    | 11.0           | 6900             | 320                    | 8.0            |
| 4600             | 322                    | 12.0           | 7000             | 324                    | 8.5            |
| 4700             | 307                    | 9.0            | 7100             | 325                    | 6.0            |
| 4800             | 294                    | 7.0            | 7200             | 344                    | 14.5           |
| 4900             | 294                    | 7.0            | 7300             | 338                    | 11.0           |
| 5000             | 262                    | 6.0            | 7400             | 324                    | 11.0           |
| 5100             | 291                    | 6.0            | 7500             | 328                    | 11.0           |
| 5200             | 313                    | 7.0            | 7600             | 332                    | 13.0           |
| 5300             | 312                    | 9.5            | 7700             | 347                    | 19.5           |
| 5400             | 315                    | 8.5            | 7800             | 335                    | 13.0           |
| 5500             | 314                    | 7.5            | 7900             | 336                    | 13.5           |
| 5600             | 322                    | 9.5            | 8000             | 337                    | 13.0           |
| 5700             | 332                    | 10.5           | 8100             | 329                    | 11.5           |
| 5800             | 330                    | 9.0            | 8200             | 344                    | 18.0           |
| 5900             | 330                    | 9.0            | 8300             | 344                    | 14.5           |
| 6000             | 333                    | 7.5            | 8400             | 334                    | 13.0           |
| 6100             | 336                    | 8.5            | 8500             | 324                    | 8.0            |
| 6200             | 337                    | 7.0            | 8600             | 332                    | 11.0           |
| 6300             | 335                    | 9.0            | 8700             | 342                    | 12.5           |
| 6400             | 330                    | 9.5            | 8800             | 345                    | 12.5           |
| 6500             | 329                    | 8.0            | 8900             | 340                    | 11.0           |

TABLE III. (CONT)

NOTE: WIND DIRECTION DATA ARE REFERENCED TRUE NORTH.



| HEIGHT<br>(FEET) | DIRECTION<br>(DEGREES) | SPEED<br>(MPH) | HEIGHT<br>(FEET) | DIRECTION<br>(DEGREES) | SPEED<br>(MPH) |
|------------------|------------------------|----------------|------------------|------------------------|----------------|
| 9000             | 345                    | 14.5           | 10600            | 319                    | 12.0           |
| 9100             | 348                    | 17.5           | 10700            | 323                    | 12.0           |
| 9200             | 348                    | 14.5           | 10800            | 343                    | 19.5           |
| 9300             | 341                    | 14.5           | 10900            | 344                    | 18.0           |
| 9400             | 343                    | 12.5           | 11000            | 337                    | 16.5           |
| 9500             | 344                    | 11.5           | 11100            | 345                    | 17.5           |
| 9600             | 349                    | 13.5           | 11200            | 337                    | 17.0           |
| 9700             | 348                    | 16.0           | 11300            | 340                    | 16.0           |
| 9800             | 352                    | 11.0           | 11400            | 341                    | 17.5           |
| 9900             | 344                    | 14.5           | 11500            | 336                    | 19.0           |
| 10000            | 349                    | 15.5           | 11600            | 350                    | 18.5           |
| 10100            | 347                    | 16.0           | 11700            | 338                    | 18.5           |
| 10200            | 343                    | 15.5           | 11800            | 338                    | 15.5           |
| 10300            | 338                    | 15.5           | 11900            | 340                    | 16.5           |
| 10400            | 336                    | 17.5           | 12000            | 326                    | 18.0           |
| 10500            | 338                    | 17.5           |                  |                        |                |

TABLE III. (CONT)

NOTE: WIND DIRECTION DATA ARE REFERENCED TRUE NORTH.

STATION ALTITUDE 4051.00 FEET MSL  
10 NOV. 77 1030 HRS MST  
ASCENSION NO. 430

SIGNIFICANT LEVEL DATA  
3140030430  
JALLEN  
TABLE IV.

GEODETIC COORDINATES  
33.16712 LAT NFG  
106.49511 LON NFG

| PRESSURE | GEOMETRIC<br>ALTITUDE<br>MILLIBARS MSL FEET | TEMPERATURE    |                        | REL. HUM.<br>PERCENT |
|----------|---|----------------|------------------------|----------------------|
|          |   | AIR<br>DEGREES | DEWPOINT<br>CENTIGRADE |                      |
| 887.7    | 4051.0                                      | 10.5           | -8.2                   | 26.0                 |
| 877.6    | 4365.5                                      | 8.2            | -11.1                  | 24.0                 |
| 856.3    | 5029.1                                      | 7.0            | -12.7                  | 23.0                 |
| 850.0    | 5223.3                                      | 7.6            | -12.7                  | 22.0                 |
| 789.3    | 7218.9                                      | 4.8            | -14.0                  | 24.0                 |
| 733.4    | 9177.9                                      | 3.5            | -12.0                  | 31.0                 |
| 700.0    | 10414.8                                     | 2.1            | -13.2                  | 31.0                 |
| 657.3    | 12070.7                                     | -1.1           | -16.4                  | 30.0                 |
| 618.3    | 13667.8                                     | -1.8           | -20.1                  | 23.0                 |
| 540.3    | 17141.9                                     | -8.1           | -26.0                  | 22.0                 |
| 521.8    | 18024.6                                     | -10.5          | -29.6                  | 19.0                 |
| 500.0    | 19094.7                                     | -13.4          | -32.0                  | 19.0                 |
| 421.3    | 23281.1                                     | -23.5          | -35.5                  | 32.0                 |
| 410.3    | 23912.9                                     | -25.0          | -35.1                  | 38.0                 |
| 400.0    | 24516.4                                     | -26.5          | -36.8                  | 37.0                 |
| 343.5    | 28063.4                                     | -34.1          | -42.5                  | 42.0                 |
| 326.8    | 29200.6                                     | -36.3          | -46.4                  | 34.0                 |
| 300.0    | 31120.9                                     | -41.8          | -50.7                  | 37.0                 |
| 277.8    | 32810.3                                     | -46.0          |                        |                      |
| 250.0    | 35091.3                                     | -48.8          |                        |                      |
| 241.3    | 35850.1                                     | -50.3          |                        |                      |
| 236.3    | 36298.1                                     | -49.4          |                        |                      |
| 200.0    | 39829.6                                     | -54.8          |                        |                      |
| 150.0    | 45740.6                                     | -62.3          |                        |                      |
| 100.0    | 53798.4                                     | -68.6          |                        |                      |
| 97.3     | 54353.5                                     | -68.0          |                        |                      |
| 85.3     | 56918.9                                     | -66.6          |                        |                      |
| 70.0     | 60805.2                                     | -68.4          |                        |                      |
| 50.0     | 67405.9                                     | -62.3          |                        |                      |
| 35.3     | 74538.3                                     | -59.7          |                        |                      |

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GEODETIC COORDINATES  
 13.16712 LAT NFG  
 106.49511 LON NFG

SIGNIFICANT LEVEL DATA

3140030430  
 ALLEN

TABLE IV. (CONT)

| PRESSURE GEOMETRIC<br>ALTITUDE<br>MILLIBARS MSL FEET | TEMPERATURE    |                        | REL. HUM.<br>PERCENT |
|--|----------------|------------------------|----------------------|
|  | AIR<br>DEGREES | DEWPOINT<br>CENTIGRADE |                      |
| 33.3 75719.9   | -62.1          |                        |                      |
| 30.0 77833.8   | -59.7          |                        |                      |
| 20.0 86193.4   | -54.3          |                        |                      |
| 10.6 99571.7   | -49.7          |                        |                      |
| 10.0 100819.5  | -46.8          |                        |                      |
| 7.0 108576.3   | -42.5          |                        |                      |

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UPPER AIR DATA  
3140030430  
JALLEN  
TABLE V.

STATION ALTITUDE 4051.00 FEET MSL  
10 NOV. 77 1030 HRS MST  
ASCENSION NO. 430

GEODTIC COORDINATES  
33.16712 LAT NFG  
106.49511 LON NFG

| GEOMETRIC ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | TEMPERATURE<br>AIR DEGREES<br>CELSIUS | REL. HUM.<br>PERCENT | DENSITY<br>GM/CUBIC<br>METER | SPEED OF<br>SOUND<br>KNOTS | WIND DATA<br>DIRECTION<br>DEGREES (T) | SPEED<br>KNOTS | INDEX<br>OF<br>REFRACTION |
|--------------------------------|-----------------------|---------------------------------------|----------------------|------------------------------|----------------------------|---------------------------------------|----------------|---------------------------|
| 4051.0                         | 887.7                 | 10.5                                  | 26.0                 | 1088.7                       | 656.6                      | 140.0                                 | 1.9            | 1.000258                  |
| 4500.0                         | 873.2                 | 8.0                                   | 23.8                 | 1081.0                       | 653.5                      |                                       |                | 1.000253                  |
| 5000.0                         | 857.2                 | 7.1                                   | 23.0                 | 1064.7                       | 652.5                      |                                       |                | 1.000248                  |
| 5500.0                         | 841.4                 | 7.2                                   | 22.3                 | 1044.5                       | 652.6                      |                                       |                | 1.000244                  |
| 6000.0                         | 825.9                 | 6.5                                   | 22.8                 | 1027.8                       | 651.8                      |                                       |                | 1.000240                  |
| 6500.0                         | 810.7                 | 5.8                                   | 23.3                 | 1011.4                       | 651.0                      |                                       |                | 1.000236                  |
| 7000.0                         | 795.8                 | 5.1                                   | 23.8                 | 995.3                        | 650.2                      |                                       |                | 1.000232                  |
| 7500.0                         | 781.0                 | 4.6                                   | 25.0                 | 978.5                        | 649.6                      |                                       |                | 1.000228                  |
| 8000.0                         | 766.5                 | 4.3                                   | 26.8                 | 961.4                        | 649.2                      |                                       |                | 1.000225                  |
| 8500.0                         | 752.3                 | 3.9                                   | 28.6                 | 944.7                        | 648.9                      |                                       |                | 1.000222                  |
| 9000.0                         | 738.3                 | 3.6                                   | 30.4                 | 928.2                        | 648.5                      |                                       |                | 1.000219                  |
| 9500.0                         | 724.6                 | 3.1                                   | 31.0                 | 912.5                        | 648.0                      |                                       |                | 1.000215                  |
| 10000.0                        | 711.0                 | 2.6                                   | 31.0                 | 897.3                        | 647.3                      |                                       |                | 1.000211                  |
| 10500.0                        | 697.7                 | 1.9                                   | 30.9                 | 882.6                        | 646.5                      |                                       |                | 1.000207                  |
| 11000.0                        | 684.6                 | 1.0                                   | 30.6                 | 869.1                        | 645.4                      |                                       |                | 1.000204                  |
| 11500.0                        | 671.7                 | .0                                    | 30.3                 | 855.0                        | 644.2                      |                                       |                | 1.000200                  |
| 12000.0                        | 659.1                 | -1.0                                  | 30.0                 | 842.7                        | 643.0                      |                                       |                | 1.000196                  |
| 12500.0                        | 646.6                 | -1.3                                  | 28.1                 | 827.6                        | 642.6                      | 315.5                                 | 13.8           | 1.000192                  |
| 13000.0                        | 634.3                 | -1.5                                  | 25.9                 | 812.0                        | 642.4                      | 307.7                                 | 14.2           | 1.000188                  |
| 13500.0                        | 622.3                 | -1.7                                  | 23.7                 | 796.1                        | 642.1                      | 311.1                                 | 17.0           | 1.000184                  |
| 14000.0                        | 610.4                 | -2.4                                  | 22.9                 | 784.8                        | 641.3                      | 314.7                                 | 19.3           | 1.000181                  |
| 14500.0                        | 598.6                 | -3.3                                  | 22.8                 | 772.3                        | 640.2                      | 320.4                                 | 20.4           | 1.000178                  |
| 15000.0                        | 587.1                 | -4.2                                  | 22.6                 | 760.1                        | 639.1                      | 321.5                                 | 21.2           | 1.000175                  |
| 15500.0                        | 575.9                 | -5.1                                  | 22.5                 | 748.0                        | 638.0                      | 318.6                                 | 21.3           | 1.000172                  |
| 16000.0                        | 564.8                 | -6.0                                  | 22.3                 | 736.1                        | 636.9                      | 317.3                                 | 22.4           | 1.000169                  |
| 16500.0                        | 553.9                 | -6.9                                  | 22.2                 | 724.5                        | 635.8                      | 316.9                                 | 23.8           | 1.000166                  |
| 17000.0                        | 543.3                 | -7.8                                  | 22.0                 | 713.0                        | 634.7                      | 317.2                                 | 25.0           | 1.000163                  |
| 17500.0                        | 532.7                 | -9.1                                  | 20.8                 | 702.4                        | 633.2                      | 317.7                                 | 25.6           | 1.000160                  |
| 18000.0                        | 522.3                 | -10.4                                 | 19.1                 | 692.3                        | 631.6                      | 318.4                                 | 25.2           | 1.000157                  |
| 18500.0                        | 512.0                 | -11.8                                 | 19.0                 | 682.2                        | 629.9                      | 318.6                                 | 24.7           | 1.000155                  |

XX WIND DATA INVALID DUE TO MISSING RAW AZIMUTH AND ELEVATION ANGLES.

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GEODTIC COORDINATES  
33.15712 LAT NFG  
106.49511 LON NFG

UPPER AIR DATA  
3140030430  
JALLEN

STATION ALTITUDE 4051.00 FEET MSL  
10 NOV. 77  
ASCENSION NO. 430

TABLE V. (CONT)

| GEOMETRIC<br>ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | TEMPERATURE<br>AIR<br>DEGREES<br>CENTIGRADE | REL. HUM.<br>PERCENT | DENSITY<br>GM/CUBIC<br>METER | SPEED OF<br>SOUND<br>KNOTS | WIND DATA<br>DIRECTION<br>DEGREES (T) | SPEED<br>KNOTS | INDEX<br>OF<br>REFRACTION |
|-----------------------------------|-----------------------|---|----------------------|------------------------------|----------------------------|---------------------------------------|----------------|---------------------------|
| 19000.0                           | 501.9                 | -13.1                                       | 19.0                 | 672.2                        | 628.3                      | 318.6                                 | 24.2           | 1.000152                  |
| 19500.0                           | 491.8                 | -14.4                                       | 20.3                 | 661.8                        | 626.8                      | 317.1                                 | 23.7           | 1.000150                  |
| 20000.0                           | 481.8                 | -15.6                                       | 21.8                 | 651.5                        | 625.3                      | 315.6                                 | 23.5           | 1.000147                  |
| 20500.0                           | 472.1                 | -16.8                                       | 23.4                 | 641.3                        | 623.9                      | 314.2                                 | 24.1           | 1.000145                  |
| 21000.0                           | 462.5                 | -18.0                                       | 24.9                 | 631.3                        | 622.4                      | 312.8                                 | 25.2           | 1.000143                  |
| 21500.0                           | 453.1                 | -19.2                                       | 26.5                 | 621.4                        | 620.9                      | 311.5                                 | 26.6           | 1.000141                  |
| 22000.0                           | 444.0                 | -20.4                                       | 28.0                 | 611.8                        | 619.4                      | 310.1                                 | 26.4           | 1.000138                  |
| 22500.0                           | 435.0                 | -21.6                                       | 29.6                 | 602.3                        | 618.0                      | 308.9                                 | 26.2           | 1.000136                  |
| 23000.0                           | 426.2                 | -22.8                                       | 31.1                 | 592.9                        | 616.5                      | 311.3                                 | 27.1           | 1.000134                  |
| 23500.0                           | 417.5                 | -24.0                                       | 34.1                 | 583.6                        | 615.0                      | 313.6                                 | 28.1           | 1.000132                  |
| 24000.0                           | 408.8                 | -25.2                                       | 37.9                 | 574.2                        | 613.5                      | 316.1                                 | 29.1           | 1.000130                  |
| 24500.0                           | 400.3                 | -26.5                                       | 37.0                 | 565.1                        | 612.0                      | 310.8                                 | 28.4           | 1.000127                  |
| 25000.0                           | 391.8                 | -27.5                                       | 37.7                 | 555.6                        | 610.6                      | 297.1                                 | 27.2           | 1.000125                  |
| 25500.0                           | 383.5                 | -28.6                                       | 38.4                 | 546.1                        | 609.3                      | 290.2                                 | 28.3           | 1.000123                  |
| 26000.0                           | 375.3                 | -29.7                                       | 39.1                 | 536.9                        | 607.9                      | 285.7                                 | 29.9           | 1.000121                  |
| 26500.0                           | 367.3                 | -30.8                                       | 39.8                 | 527.8                        | 606.6                      | 288.0                                 | 31.1           | 1.000119                  |
| 27000.0                           | 359.5                 | -31.8                                       | 40.5                 | 518.9                        | 605.3                      | 290.8                                 | 32.4           | 1.000117                  |
| 27500.0                           | 351.9                 | -32.9                                       | 41.2                 | 510.2                        | 603.9                      | 286.6                                 | 32.9           | 1.000115                  |
| 28000.0                           | 344.4                 | -34.0                                       | 41.9                 | 501.6                        | 602.6                      | 286.1                                 | 33.4           | 1.000113                  |
| 28500.0                           | 337.0                 | -34.9                                       | 38.9                 | 492.8                        | 601.3                      | 285.4                                 | 33.3           | 1.000111                  |
| 29000.0                           | 329.7                 | -35.9                                       | 35.4                 | 484.1                        | 600.1                      | 284.9                                 | 33.1           | 1.000108                  |
| 29500.0                           | 322.5                 | -37.2                                       | 34.5                 | 476.0                        | 598.5                      | 283.8                                 | 33.4           | 1.000107                  |
| 30000.0                           | 315.4                 | -38.6                                       | 35.2                 | 468.3                        | 596.7                      | 282.7                                 | 33.8           | 1.000105                  |
| 30500.0                           | 308.4                 | -40.0                                       | 36.0                 | 460.8                        | 594.9                      | 281.7                                 | 33.9           | 1.000103                  |
| 31000.0                           | 301.6                 | -41.5                                       | 36.8                 | 453.5                        | 593.0                      | 280.8                                 | 34.1           | 1.000101                  |
| 31500.0                           | 294.9                 | -42.7                                       | 28.7**               | 445.8                        | 591.4                      | 280.2                                 | 34.5           | 1.000100                  |
| 32000.0                           | 288.2                 | -44.0                                       | 17.7**               | 438.1                        | 589.8                      | 279.3                                 | 34.8           | 1.000098                  |
| 32500.0                           | 281.8                 | -45.2                                       | 6.8**                | 430.6                        | 588.2                      | 278.0                                 | 34.8           | 1.000096                  |
| 33000.0                           | 275.4                 | -46.2                                       |                      | 422.8                        | 586.9                      | 277.1                                 | 34.6           | 1.000094                  |
| 33500.0                           | 269.1                 | -46.8                                       |                      | 414.2                        | 586.1                      | 276.8                                 | 34.1           | 1.000092                  |

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

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UPPER AIR DATA  
3140030430  
JALLEN  
TABLE V. (CONT)

STATION ALTITUDE 4051.00 FEET MSL  
10 NOV. 77  
ASCENSION NO. 430

GEODETIC COORDINATES  
33.16712 LAT NFG  
106.49511 LONG NFG

| GEOMETRIC<br>ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | TEMPERATURE    |                        | REL. HUM.<br>PERCENT | DENSITY<br>GM/CUBIC<br>METER | SPEED OF<br>SOUND<br>M/SEC | WIND DATA                 |                | INDEX<br>OF<br>REFRACTION |
|-----------------------------------|-----------------------|----------------|------------------------|----------------------|------------------------------|----------------------------|---------------------------|----------------|---------------------------|
|                                   |                       | AIR<br>DEGREES | DEWPOINT<br>CENTIGRADE |                      |                              |                            | DIRECTION<br>DEGREES (TD) | SPEED<br>KNOTS |                           |
| 34000.0                           | 262.9                 | -47.5          |                        |                      | 405.9                        | 545.3                      | 280.6                     | 32.8           | 1.000000                  |
| 34500.0                           | 256.9                 | -48.1          |                        |                      | 397.7                        | 544.5                      | 287.5                     | 31.2           | 1.000009                  |
| 35000.0                           | 251.1                 | -48.7          |                        |                      | 389.6                        | 543.7                      | 294.2                     | 31.2           | 1.000047                  |
| 35500.0                           | 245.3                 | -49.6          |                        |                      | 382.2                        | 542.5                      | 300.6                     | 31.9           | 1.000065                  |
| 36000.0                           | 239.6                 | -50.0          |                        |                      | 374.1                        | 542.0                      | 302.0                     | 32.3           | 1.000083                  |
| 36500.0                           | 234.1                 | -49.7          |                        |                      | 364.9                        | 542.3                      | 302.0                     | 32.5           | 1.000061                  |
| 37000.0                           | 228.6                 | -50.5          |                        |                      | 357.6                        | 541.3                      | 304.4                     | 30.8           | 1.000040                  |
| 37500.0                           | 223.3                 | -51.2          |                        |                      | 350.5                        | 540.3                      | 307.7                     | 28.8           | 1.000078                  |
| 38000.0                           | 218.0                 | -52.0          |                        |                      | 343.5                        | 539.3                      | 312.5                     | 29.2           | 1.000077                  |
| 38500.0                           | 213.0                 | -52.8          |                        |                      | 336.6                        | 538.3                      | 318.6                     | 30.0           | 1.000075                  |
| 39000.0                           | 208.0                 | -53.5          |                        |                      | 329.9                        | 537.3                      | 313.1                     | 30.2           | 1.000073                  |
| 39500.0                           | 203.1                 | -54.3          |                        |                      | 323.3                        | 536.3                      | 309.7                     | 30.6           | 1.000072                  |
| 40000.0                           | 198.3                 | -55.0          |                        |                      | 316.8                        | 535.4                      | 305.5                     | 29.7           | 1.000071                  |
| 40500.0                           | 193.6                 | -55.7          |                        |                      | 310.1                        | 534.5                      | 301.3                     | 28.9           | 1.000069                  |
| 41000.0                           | 188.9                 | -56.3          |                        |                      | 303.5                        | 533.7                      | 300.2                     | 27.3           | 1.000068                  |
| 41500.0                           | 184.4                 | -56.9          |                        |                      | 297.1                        | 532.9                      | 299.1                     | 26.0           | 1.000066                  |
| 42000.0                           | 180.0                 | -57.6          |                        |                      | 290.8                        | 532.0                      | 298.3                     | 27.3           | 1.000065                  |
| 42500.0                           | 175.6                 | -58.2          |                        |                      | 284.6                        | 531.2                      | 297.4                     | 29.0           | 1.000063                  |
| 43000.0                           | 171.4                 | -58.8          |                        |                      | 278.6                        | 530.3                      | 296.2                     | 32.7           | 1.000062                  |
| 43500.0                           | 167.3                 | -59.5          |                        |                      | 272.7                        | 529.5                      | 295.6                     | 35.8           | 1.000061                  |
| 44000.0                           | 163.3                 | -60.1          |                        |                      | 266.9                        | 528.7                      | 295.3                     | 36.8           | 1.000059                  |
| 44500.0                           | 159.3                 | -60.7          |                        |                      | 261.3                        | 527.8                      | 297.4                     | 37.4           | 1.000058                  |
| 45000.0                           | 155.5                 | -61.4          |                        |                      | 255.8                        | 527.0                      | 300.0                     | 36.7           | 1.000057                  |
| 45500.0                           | 151.8                 | -62.0          |                        |                      | 250.4                        | 526.1                      | 302.2                     | 36.0           | 1.000056                  |
| 46000.0                           | 148.1                 | -62.5          |                        |                      | 244.8                        | 525.4                      | 302.2                     | 35.4           | 1.000055                  |
| 46500.0                           | 144.4                 | -62.9          |                        |                      | 239.2                        | 524.9                      | 302.2                     | 34.8           | 1.000053                  |
| 47000.0                           | 140.8                 | -63.3          |                        |                      | 233.7                        | 524.4                      | 302.2                     | 34.9           | 1.000052                  |
| 47500.0                           | 137.3                 | -63.7          |                        |                      | 228.3                        | 523.8                      | 302.2                     | 35.1           | 1.000051                  |
| 48000.0                           | 133.9                 | -64.1          |                        |                      | 223.1                        | 523.3                      | 302.2                     | 35.1           | 1.000050                  |
| 48500.0                           | 130.6                 | -64.5          |                        |                      | 217.9                        | 522.8                      | 302.2                     | 35.1           | 1.000049                  |

STATION ALTITUDE 4051.00 FEET MSL  
10 NOV. 77 1030 HRS MST  
ASCENSION NO. 430

UPPER AIR DATA  
3140030430  
JALLEN  
TABLE V. (CONT)

GEODTIC COORDINATES  
33.16712 LAT NFG  
106.49511 LON NFG

| GEOMETRIC<br>ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | TEMPERATURE<br>AIR<br>DEGREES<br>CENTIGRADE | REL. HUM.<br>PERCENT | DENSITY<br>GM/CUBIC<br>METER | SPEED OF<br>SOUND<br>KNOTS | DIRECTION<br>DEGREES (T) | WIND DATA |       | INDEX<br>OF<br>REFRACTION |
|-----------------------------------|-----------------------|---|----------------------|------------------------------|----------------------------|--------------------------|-----------|-------|---------------------------|
|                                   |                       |   |                      |                              |                            |                          | SPED      | KNOTS |                           |
| 49000.0                           | 127.3                 | -64.8                                       |                      | 212.9                        | 562.3                      | 302.2                    | 34.8      |       | 1.000047                  |
| 49500.0                           | 124.1                 | -65.2                                       |                      | 208.0                        | 561.7                      | 302.2                    | 34.2      |       | 1.000046                  |
| 50000.0                           | 121.1                 | -65.6                                       |                      | 203.2                        | 561.2                      | 302.2                    | 33.6      |       | 1.000045                  |
| 50500.0                           | 118.1                 | -66.0                                       |                      | 198.0                        | 560.7                      | 302.2                    | 32.8      |       | 1.000044                  |
| 51000.0                           | 115.1                 | -66.4                                       |                      | 194.0                        | 560.2                      | 302.2                    | 32.0      |       | 1.000043                  |
| 51500.0                           | 112.3                 | -66.8                                       |                      | 189.5                        | 559.6                      | 280.0                    | 33.7      |       | 1.000042                  |
| 52000.0                           | 109.5                 | -67.2                                       |                      | 185.2                        | 559.1                      | 261.5                    | 40.2      |       | 1.000041                  |
| 52500.0                           | 106.8                 | -67.6                                       |                      | 180.9                        | 558.6                      | 259.6                    | 42.4      |       | 1.000040                  |
| 53000.0                           | 104.1                 | -68.0                                       |                      | 176.7                        | 558.0                      | 260.1                    | 43.4      |       | 1.000039                  |
| 53500.0                           | 101.5                 | -68.4                                       |                      | 172.7                        | 557.5                      | 270.2                    | 38.9      |       | 1.000038                  |
| 54000.0                           | 99.0                  | -68.7                                       |                      | 168.7                        | 557.0                      | 287.5                    | 34.8      |       | 1.000038                  |
| 54500.0                           | 96.5                  | -68.8                                       |                      | 164.4                        | 557.0                      | 299.7                    | 33.9      |       | 1.000037                  |
| 55000.0                           | 94.1                  | -68.3                                       |                      | 160.0                        | 557.6                      | 299.7                    | 33.1      |       | 1.000036                  |
| 55500.0                           | 91.7                  | -67.9                                       |                      | 155.6                        | 558.2                      | 299.7                    | 32.3      |       | 1.000035                  |
| 56000.0                           | 89.4                  | -67.4                                       |                      | 151.4                        | 558.8                      | 299.7                    | 31.8      |       | 1.000034                  |
| 56500.0                           | 87.1                  | -67.0                                       |                      | 147.2                        | 559.4                      | 299.7                    | 31.3      |       | 1.000033                  |
| 57000.0                           | 84.9                  | -66.6                                       |                      | 143.3                        | 559.8                      | 301.2                    | 24.0      |       | 1.000032                  |
| 57500.0                           | 82.8                  | -66.9                                       |                      | 139.9                        | 559.5                      | 307.7                    | 11.9      |       | 1.000031                  |
| 58000.0                           | 80.7                  | -67.1                                       |                      | 136.5                        | 559.2                      | 348.9                    | 3.4       |       | 1.000030                  |
| 58500.0                           | 78.7                  | -67.3                                       |                      | 133.2                        | 558.9                      | 12.2                     | 2.6       |       | 1.000030                  |
| 59000.0                           | 76.7                  | -67.6                                       |                      | 130.0                        | 558.6                      | 45.7                     | 2.6       |       | 1.000029                  |
| 59500.0                           | 74.8                  | -67.8                                       |                      | 126.4                        | 556.3                      | 313.0                    | 5.1       |       | 1.000028                  |
| 60000.0                           | 72.9                  | -68.0                                       |                      | 123.9                        | 558.0                      | 302.8                    | 11.1      |       | 1.000028                  |
| 60500.0                           | 71.1                  | -68.3                                       |                      | 120.9                        | 557.6                      | 299.9                    | 13.9      |       | 1.000027                  |
| 61000.0                           | 69.3                  | -68.2                                       |                      | 117.8                        | 557.7                      | 299.9                    | 12.4      |       | 1.000026                  |
| 61500.0                           | 67.6                  | -67.8                                       |                      | 114.6                        | 558.3                      | 299.9                    | 10.8      |       | 1.000026                  |
| 62000.0                           | 65.9                  | -67.3                                       |                      | 111.5                        | 558.9                      | 294.1                    | 12.3      |       | 1.000025                  |
| 62500.0                           | 64.3                  | -66.9                                       |                      | 108.5                        | 559.6                      | 289.2                    | 14.6      |       | 1.000024                  |
| 63000.0                           | 62.7                  | -66.4                                       |                      | 105.6                        | 560.2                      | 280.6                    | 16.7      |       | 1.000024                  |
| 63500.0                           | 61.1                  | -65.9                                       |                      | 102.7                        | 560.8                      | 267.5                    | 18.1      |       | 1.000023                  |



STATION ALTITUDE 4051.00 FEET MSL  
 10 NOV. 77  
 ASCENSION 140. 430

UPPER AIR DATA  
 310030Z30  
 JALLET  
 TABLE V. (CONT)

GEODTIC COORDINATES  
 33.16712 LAT NFG  
 106.49511 LON NFG

| GEOMETRIC<br>ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | TEMPERATURE               |                     | REL. HUM.<br>PERCENT | DENSITY<br>GM/CM <sup>3</sup> | SPEED OF<br>SOUND<br>M/SEC | WIND DATA                |                | INDEX<br>OF<br>REFRACTION |
|-----------------------------------|-----------------------|---------------------------|---------------------|----------------------|-------------------------------|----------------------------|--------------------------|----------------|---------------------------|
|                                   |                       | AIR<br>DEGREES<br>CELSIUS | DEWPOINT<br>CELSIUS |                      |                               |                            | DIRECTION<br>DEGREES (T) | SPEED<br>KNOTS |                           |
| 64000.0                           | 59.6                  | -65.5                     |                     |                      | 170.0                         | 561.4                      | 268.3                    | 19.4           | 1.000022                  |
| 64500.0                           | 58.1                  | -65.0                     |                     |                      | 97.3                          | 562.0                      | 291.8                    | 19.9           | 1.000022                  |
| 65000.0                           | 56.7                  | -64.6                     |                     |                      | 94.6                          | 562.6                      | 296.2                    | 20.2           | 1.000021                  |
| 65500.0                           | 55.3                  | -64.1                     |                     |                      | 92.1                          | 563.3                      | 299.6                    | 20.7           | 1.000021                  |
| 66000.0                           | 53.9                  | -63.7                     |                     |                      | 89.6                          | 563.9                      | 299.6                    | 21.8           | 1.000020                  |
| 66500.0                           | 52.5                  | -63.2                     |                     |                      | 87.2                          | 564.5                      | 299.6                    | 22.8           | 1.000019                  |
| 67000.0                           | 51.2                  | -62.7                     |                     |                      | 84.8                          | 565.1                      | 299.6                    | 18.9           | 1.000019                  |
| 67500.0                           | 50.0                  | -62.3                     |                     |                      | 82.5                          | 565.7                      | 299.6                    | 13.3           | 1.000018                  |
| 68000.0                           | 48.7                  | -62.1                     |                     |                      | 80.5                          | 565.9                      | 299.6                    | 8.4            | 1.000018                  |
| 68500.0                           | 47.6                  | -61.9                     |                     |                      | 78.4                          | 566.2                      | 299.6                    | 5.6            | 1.000017                  |
| 69000.0                           | 46.4                  | -61.7                     |                     |                      | 76.5                          | 566.4                      | 299.6                    | 2.8            | 1.000017                  |
| 69500.0                           | 45.3                  | -61.6                     |                     |                      | 74.5                          | 566.7                      | 299.6                    | 4.4            | 1.000017                  |
| 70000.0                           | 44.2                  | -61.4                     |                     |                      | 72.6                          | 566.9                      | 299.6                    | 8.2            | 1.000016                  |
| 70500.0                           | 43.1                  | -61.2                     |                     |                      | 70.8                          | 567.2                      | 299.6                    | 11.7           | 1.000016                  |
| 71000.0                           | 42.0                  | -61.0                     |                     |                      | 69.0                          | 567.4                      | 299.6                    | 12.8           | 1.000015                  |
| 71500.0                           | 41.0                  | -60.3                     |                     |                      | 67.3                          | 567.7                      | 299.6                    | 13.9           | 1.000015                  |
| 72000.0                           | 40.0                  | -60.6                     |                     |                      | 65.6                          | 567.9                      | 299.6                    | 13.3           | 1.000015                  |
| 72500.0                           | 39.0                  | -60.5                     |                     |                      | 63.9                          | 568.2                      | 299.6                    | 11.3           | 1.000014                  |
| 73000.0                           | 38.1                  | -60.3                     |                     |                      | 62.3                          | 568.4                      | 299.6                    | 9.2            | 1.000014                  |
| 73500.0                           | 37.2                  | -60.1                     |                     |                      | 60.8                          | 568.7                      | 299.6                    | 5.6            | 1.000014                  |
| 74000.0                           | 36.3                  | -59.9                     |                     |                      | 59.2                          | 568.9                      | 299.6                    | 1.8            | 1.000013                  |
| 74500.0                           | 35.4                  | -59.7                     |                     |                      | 57.7                          | 569.2                      | 113.6                    | 2.0            | 1.000013                  |
| 75000.0                           | 34.5                  | -60.6                     |                     |                      | 56.6                          | 567.9                      | 119.6                    | 4.9            | 1.000013                  |
| 75500.0                           | 33.7                  | -61.7                     |                     |                      | 55.4                          | 566.6                      | 113.6                    | 7.8            | 1.000012                  |
| 76000.0                           | 32.9                  | -61.8                     |                     |                      | 54.1                          | 566.4                      | 123.2                    | 10.2           | 1.000012                  |
| 76500.0                           | 32.0                  | -61.2                     |                     |                      | 52.7                          | 567.1                      | 140.8                    | 11.0           | 1.000012                  |
| 77000.0                           | 31.3                  | -60.5                     |                     |                      | 51.2                          | 567.9                      | 155.0                    | 12.6           | 1.000011                  |
| 77500.0                           | 30.5                  | -60.1                     |                     |                      | 49.9                          | 568.7                      | 164.8                    | 13.5           | 1.000011                  |
| 78000.0                           | 29.6                  | -59.6                     |                     |                      | 48.5                          | 569.3                      | 173.5                    | 12.5           | 1.000011                  |
| 78500.0                           | 29.0                  | -59.3                     |                     |                      | 47.3                          | 569.7                      | 183.5                    | 11.7           | 1.000011                  |



GEODETIC COORDINATES  
33.16712 LAT NFG  
106.49511 LONG NFG

UPPER AIR DATA  
3140030430  
JALLEN  
TABLE V. (CONT)

STATION ALTITUDE 4051.00 FEET MSL  
10 NOV. 77 1030 HRS MST  
ASCENSION NO. 430

| GEOMETRIC<br>ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | TEMPERATURE<br>AIR<br>DEGREES<br>CENTIGRADE | REL. HUM.<br>PERCENT | DENSITY<br>GM/CM <sup>3</sup><br>WATER | SPEED OF<br>SOUND<br>KNOTS | WIND DATA                 |                | INDEX<br>OF<br>REFRACTION |
|-----------------------------------|-----------------------|---|----------------------|--|----------------------------|---------------------------|----------------|---------------------------|
|                                   |                       |   |                      |  |                            | DIRECTION,<br>DEGREES (T) | SPEED<br>KNOTS |                           |
| 79000.0                           | 28.4                  | -58.9                                       |                      | 46.1                                   | 570.2                      | 189.5                     | 9.7            | 1.000010                  |
| 79500.0                           | 27.7                  | -58.6                                       |                      | 44.9                                   | 570.5                      | 191.4                     | 6.2            | 1.000010                  |
| 80000.0                           | 27.0                  | -58.3                                       |                      | 43.8                                   | 571.0                      | 198.2                     | 2.7            | 1.000010                  |
| 80500.0                           | 26.4                  | -58.0                                       |                      | 42.7                                   | 571.5                      | 220.8                     | 1.4            | 1.000009                  |
| 81000.0                           | 25.7                  | -57.7                                       |                      | 41.6                                   | 571.9                      | 235.4                     | 1.5            | 1.000009                  |
| 81500.0                           | 25.1                  | -57.3                                       |                      | 40.5                                   | 572.3                      | 246.8                     | 1.8            | 1.000009                  |
| 82000.0                           | 24.5                  | -57.0                                       |                      | 39.5                                   | 572.7                      | 227.8                     | 1.7            | 1.000009                  |
| 82500.0                           | 23.9                  | -56.7                                       |                      | 38.5                                   | 573.2                      | 199.5                     | 2.0            | 1.000009                  |
| 83000.0                           | 23.4                  | -56.4                                       |                      | 37.5                                   | 573.6                      | 181.0                     | 2.6            | 1.000008                  |
| 83500.0                           | 22.8                  | -56.0                                       |                      | 36.6                                   | 574.0                      | 236.0                     | 2.3            | 1.000008                  |
| 84000.0                           | 22.2                  | -55.7                                       |                      | 35.6                                   | 574.5                      | 275.7                     | 4.3            | 1.000008                  |
| 84500.0                           | 21.7                  | -55.4                                       |                      | 34.7                                   | 574.9                      | 287.9                     | 7.0            | 1.000008                  |
| 85000.0                           | 21.2                  | -55.1                                       |                      | 33.9                                   | 575.3                      | 293.0                     | 9.9            | 1.000008                  |
| 85500.0                           | 20.7                  | -54.7                                       |                      | 33.0                                   | 575.7                      | 295.8                     | 13.0           | 1.000007                  |
| 86000.0                           | 20.2                  | -54.4                                       |                      | 32.2                                   | 576.2                      | 297.4                     | 15.8           | 1.000007                  |
| 86500.0                           | 19.7                  | -54.2                                       |                      | 31.4                                   | 576.5                      | 297.8                     | 15.9           | 1.000007                  |
| 87000.0                           | 19.2                  | -54.0                                       |                      | 30.6                                   | 576.7                      | 298.1                     | 16.0           | 1.000007                  |
| 87500.0                           | 18.6                  | -53.9                                       |                      | 29.9                                   | 576.9                      | 298.5                     | 16.2           | 1.000007                  |
| 88000.0                           | 18.4                  | -53.7                                       |                      | 29.1                                   | 577.1                      | 298.6                     | 16.0           | 1.000006                  |
| 88500.0                           | 17.9                  | -53.5                                       |                      | 28.4                                   | 577.4                      | 298.6                     | 15.7           | 1.000006                  |
| 89000.0                           | 17.5                  | -53.3                                       |                      | 27.7                                   | 577.6                      | 298.6                     | 15.4           | 1.000006                  |
| 89500.0                           | 17.1                  | -53.2                                       |                      | 27.1                                   | 577.8                      | 298.6                     | 15.0           | 1.000006                  |
| 90000.0                           | 16.7                  | -53.0                                       |                      | 26.4                                   | 578.0                      | 298.6                     | 14.9           | 1.000006                  |
| 90500.0                           | 16.3                  | -52.8                                       |                      | 25.8                                   | 578.3                      | 298.6                     | 14.9           | 1.000006                  |
| 91000.0                           | 15.9                  | -52.6                                       |                      | 25.2                                   | 578.5                      | 298.6                     | 14.8           | 1.000006                  |
| 91500.0                           | 15.5                  | -52.5                                       |                      | 24.5                                   | 578.7                      | 298.6                     | 14.8           | 1.000005                  |
| 92000.0                           | 15.2                  | -52.3                                       |                      | 23.9                                   | 578.9                      | 298.6                     | 14.4           | 1.000005                  |
| 92500.0                           | 14.8                  | -52.1                                       |                      | 23.4                                   | 579.2                      | 298.6                     | 14.1           | 1.000005                  |
| 93000.0                           | 14.5                  | -52.0                                       |                      | 22.8                                   | 579.4                      | 298.6                     | 13.8           | 1.000005                  |
| 93500.0                           | 14.1                  | -51.8                                       |                      | 22.3                                   | 579.6                      | 298.6                     | 13.6           | 1.000005                  |

STATION ALTITUDE 4051.00 FEET MSL  
10 NOV. 77 1030 HRS MST  
ASCENSION NO. 430

UPPER AIR DATA  
31400000430  
JALLEN  
TABLE V. (CONT)

GEOGRAPHIC COORDINATES  
33.16712 LAT NFG  
106.49511 LON NFG

| GEOMETRIC<br>ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | TEMPERATURE                  |                        | REL. HUM.<br>PERCENT | DENSITY<br>GM/CM <sup>3</sup><br>METER | SPEED OF<br>SOUND<br>KNOTS | WIND DATA                |                | INDEX<br>OF<br>REFRACTION |
|-----------------------------------|-----------------------|------------------------------|------------------------|----------------------|--|----------------------------|--------------------------|----------------|---------------------------|
|                                   |                       | AIR<br>DEGREES<br>CENTIGRADE | DEWPOINT<br>CENTIGRADE |                      |  |                            | DIRECTION<br>DEGREES (T) | SPEED<br>KNOTS |                           |
| 94000.0                           | 13.8                  | -51.6                        |                        |                      | 21.7                                   | 579.9                      | 296.6                    | 13.3           | 1.000005                  |
| 94500.0                           | 13.5                  | -51.4                        |                        |                      | 21.2                                   | 580.1                      | 298.6                    | 13.0           | 1.000005                  |
| 95000.0                           | 13.2                  | -51.3                        |                        |                      | 20.7                                   | 580.3                      | 298.6                    | 12.7           | 1.000005                  |
| 95500.0                           | 12.9                  | -51.1                        |                        |                      | 20.2                                   | 580.5                      | 300.0                    | 12.3           | 1.000004                  |
| 96000.0                           | 12.6                  | -50.9                        |                        |                      | 19.7                                   | 580.7                      | 301.9                    | 11.9           | 1.000004                  |
| 96500.0                           | 12.3                  | -50.8                        |                        |                      | 19.2                                   | 581.0                      | 304.0                    | 11.6           | 1.000004                  |
| 97000.0                           | 12.0                  | -50.6                        |                        |                      | 18.7                                   | 581.2                      | 307.0                    | 11.3           | 1.000004                  |
| 97500.0                           | 11.7                  | -50.4                        |                        |                      | 18.3                                   | 581.4                      | 319.9                    | 12.1           | 1.000004                  |
| 98000.0                           | 11.4                  | -50.2                        |                        |                      | 17.8                                   | 581.6                      | 330.8                    | 13.4           | 1.000004                  |
| 98500.0                           | 11.2                  | -50.1                        |                        |                      | 17.4                                   | 581.9                      | 339.4                    | 15.1           | 1.000004                  |
| 99000.0                           | 10.9                  | -49.9                        |                        |                      | 17.0                                   | 582.1                      | 344.2                    | 16.1           | 1.000004                  |
| 99500.0                           | 10.6                  | -49.7                        |                        |                      | 16.6                                   | 582.3                      | 345.1                    | 15.3           | 1.000004                  |
| 100000.0                          | 10.4                  | -48.7                        |                        |                      | 16.1                                   | 583.6                      | 348.0                    | 14.6           | 1.000004                  |
| 100500.0                          | 10.2                  | -47.5                        |                        |                      | 15.7                                   | 585.2                      | 347.1                    | 13.8           | 1.000003                  |
| 101000.0                          | 9.9                   | -46.7                        |                        |                      | 15.3                                   | 586.2                      | 344.2                    | 13.5           | 1.000003                  |
| 101500.0                          | 9.7                   | -46.4                        |                        |                      | 14.9                                   | 586.6                      | 338.8                    | 13.5           | 1.000003                  |
| 102000.0                          | 9.5                   | -46.1                        |                        |                      | 14.5                                   | 587.0                      | 333.4                    | 13.5           | 1.000003                  |
| 102500.0                          | 9.3                   | -45.9                        |                        |                      | 14.2                                   | 587.3                      | 329.1                    | 13.7           | 1.000003                  |
| 103000.0                          | 9.0                   | -45.6                        |                        |                      | 13.8                                   | 587.7                      | 324.5                    | 13.9           | 1.000003                  |
| 103500.0                          | 8.8                   | -45.3                        |                        |                      | 13.5                                   | 588.0                      | 324.6                    | 13.9           | 1.000003                  |
| 104000.0                          | 8.6                   | -45.0                        |                        |                      | 13.2                                   | 588.4                      | 324.7                    | 13.8           | 1.000003                  |
| 104500.0                          | 8.4                   | -44.8                        |                        |                      | 12.9                                   | 588.8                      | 324.8                    | 13.8           | 1.000003                  |
| 105000.0                          | 8.3                   | -44.5                        |                        |                      | 12.6                                   | 589.1                      | 325.0                    | 13.7           | 1.000003                  |
| 105500.0                          | 8.1                   | -44.2                        |                        |                      | 12.3                                   | 589.5                      |                          |                | 1.000003                  |
| 106000.0                          | 7.9                   | -43.9                        |                        |                      | 12.0                                   | 589.8                      |                          |                | 1.000003                  |
| 106500.0                          | 7.7                   | -43.7                        |                        |                      | 11.7                                   | 590.2                      |                          |                | 1.000003                  |
| 107000.0                          | 7.5                   | -43.4                        |                        |                      | 11.4                                   | 590.5                      |                          |                | 1.000003                  |
| 107500.0                          | 7.4                   | -43.1                        |                        |                      | 11.1                                   | 590.9                      |                          |                | 1.000002                  |
| 108000.0                          | 7.2                   | -42.8                        |                        |                      | 10.9                                   | 591.2                      |                          |                | 1.000002                  |
| 108500.0                          | 7.0                   | -42.5                        |                        |                      | 10.6                                   | 591.6                      |                          |                | 1.000002                  |

MANDATORY LEVELS  
3400.0 430  
JALLET  
TABLE VI.

STATION ALTITUDE 4051.00 FEET MSL  
10 NOV. 77 1030 HRS NST  
ASCENSION NO. 430

GEOGRAPHIC COORDINATES  
13.16712 LAT NFG  
106.49511 LONG NFG

| PRESSURE GEOPOTENTIAL |         | TEMPERATURE      |                       | REL. HUM.<br>PERCENT | WIND DATA                 |                |
|-----------------------|---------|------------------|-----------------------|----------------------|---------------------------|----------------|
| MILLIBARS             | FEET    | AIR<br>DEGREES C | DEWPOINT<br>DEGREES C |                      | DIRECTION<br>DEGREES (TN) | SPEED<br>KNOTS |
| 850.0                 | 5227.   | 7.6              | -12.7                 | 22.                  | 9999.0                    | 9999.0XX       |
| 800.0                 | 6850.   | 5.3              | -13.0                 | 24.                  | 9999.0                    | 9999.0XX       |
| 750.0                 | 8532.   | 3.9              | -12.5                 | 29.                  | 9999.0                    | 9999.0XX       |
| 700.0                 | 10410.  | 2.1              | -13.2                 | 31.                  | 9999.0                    | 9999.0XX       |
| 650.0                 | 12365.  | -1.2             | -17.1                 | 29.                  | 317.9                     | 13.8           |
| 600.0                 | 14453.  | -3.2             | -21.4                 | 23.                  | 320.0                     | 20.4           |
| 550.0                 | 16694.  | -7.3             | -25.2                 | 22.                  | 317.0                     | 24.3           |
| 500.0                 | 19104.  | -13.4            | -32.0                 | 19.                  | 316.3                     | 24.1           |
| 450.0                 | 21703.  | -19.6            | -33.8                 | 27.                  | 310.0                     | 26.6           |
| 400.0                 | 24535.  | -26.5            | -36.8                 | 37.                  | 309.2                     | 28.2           |
| 350.0                 | 27658.  | -33.2            | -41.8                 | 41.                  | 297.6                     | 33.1           |
| 300.0                 | 31154.  | -41.8            | -50.7                 | 37.                  | 280.6                     | 34.3           |
| 250.0                 | 35135.  | -48.8            |                       |                      | 296.7                     | 31.4           |
| 200.0                 | 39889.  | -54.8            |                       |                      | 305.8                     | 29.7           |
| 175.0                 | 42668.  | -53.3            |                       |                      | 290.0                     | 30.9           |
| 150.0                 | 45822.  | -62.3            |                       |                      | 302.2                     | 35.5           |
| 125.0                 | 48491.  | -65.1            |                       |                      | 302.2                     | 34.1           |
| 100.0                 | 53915.  | -68.6            |                       |                      | 289.5                     | 34.6           |
| 80.0                  | 58322.  | -67.2            |                       |                      | 11.3                      | 2.6            |
| 70.0                  | 60957.  | -68.4            |                       |                      | 299.9                     | 11.9           |
| 60.0                  | 64011.  | -65.6            |                       |                      | 289.1                     | 19.8           |
| 50.0                  | 67676.  | -62.3            |                       |                      | 299.6                     | 9.0            |
| 40.0                  | 72210.  | -60.6            |                       |                      | 299.0                     | 11.4           |
| 30.0                  | 78092.  | -59.7            |                       |                      | 161.1                     | 11.9           |
| 25.0                  | 81853.  | -57.3            |                       |                      | 217.1                     | 1.8            |
| 20.0                  | 86514.  | -54.3            |                       |                      | 296.0                     | 16.0           |
| 15.0                  | 92594.  | -52.2            |                       |                      | 290.0                     | 13.8           |
| 10.0                  | 101265. | -46.8            |                       |                      | 336.0                     | 13.5           |
| 7.0                   | 109098. | -42.5            |                       |                      |                           |                |

XX WIND DATA INVALID DUE TO MISSING RAW AZIMUTH AND ELEVATION ANGLES.

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STATION ALTITUDE 3989.00 FEET MSL  
10 NOV. 77 1205 HRS MST  
ASCENSION NO. 808

SIGNIFICANT LEVEL DATA  
3140020RUB  
WHITE SANDS  
TABLE VII.

GEODETIC COORDINATES  
32.40043 LAT DEG  
106.37033 LON DEG

| PRESSURE | GEOMETRIC<br>ALTITUDE | TEMPERATURE    |                        | REL. HUM.<br>PERCENT |
|----------|-----------------------|----------------|------------------------|----------------------|
|          |                       | AIR<br>DEGREES | DEWPOINT<br>CENTIGRADE |                      |
| 888.8    | 3989.0                | 14.5           | -10.2                  | 17.0                 |
| 850.0    | 5215.9                | 8.7            | -11.2                  | 23.0                 |
| 761.8    | 8163.2                | 4.4            | -14.4                  | 24.0                 |
| 736.8    | 9055.2                | 5.2            | -11.8                  | 28.0                 |
| 700.0    | 10419.4               | 2.2            | -13.5                  | 30.0                 |
| 643.8    | 12741.4               | -1.8           | -19.2                  | 25.0                 |
| 618.8    | 13653.0               | -1.4           | -22.6                  | 18.0                 |
| 539.3    | 17194.9               | -8.6           | -25.5                  | 24.0                 |
| 506.0    | 19097.8               | -13.9          | -28.8                  | 27.0                 |
| 432.8    | 22637.6               | -21.4          | -33.0                  | 34.0                 |
| 400.0    | 24523.6               | -26.1          | -40.6                  | 24.0                 |
| 379.8    | 25744.5               | -29.0          | -40.7                  | 31.0                 |
| 349.8    | 27653.7               | -33.5          | -37.2                  | 69.0                 |
| 342.8    | 28117.7               | -34.2          | -40.6                  | 52.0                 |
| 327.8    | 29137.2               | -36.9          | -44.6                  | 44.0                 |
| 308.3    | 30515.8               | -40.5          | -44.2                  | 54.0                 |
| 300.0    | 31122.1               | -42.4          | -49.0                  | 48.0                 |
| 259.3    | 34306.1               | -48.2          |                        |                      |
| 250.0    | 35093.5               | -48.2          |                        |                      |
| 200.0    | 39828.6               | -55.1          |                        |                      |
| 150.0    | 45741.3               | -61.9          |                        |                      |
| 126.3    | 49206.1               | -63.4          |                        |                      |
| 104.3    | 52996.5               | -68.9          |                        |                      |
| 100.0    | 53819.0               | -68.9          |                        |                      |
| 85.3     | 56942.3               | -66.6          |                        |                      |
| 75.3     | 59391.1               | -68.9          |                        |                      |
| 70.0     | 60816.1               | -68.9          |                        |                      |
| 50.0     | 67518.1               | -60.5          |                        |                      |
| 35.3     | 74564.3               | -61.9          |                        |                      |
| 30.0     | 77879.4               | -57.4          |                        |                      |

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GEODETIC COORDINATES  
32.40043 LAT DEG  
106.37033 LON DEG

SIGNIFICANT LEVEL DATA

31400208CR  
WHITE SANDS

TABLE VII.(CONT)

STATION ALTITUDE 3989.00 FEET MSL  
10 NOV. 77 1205 HRS MST  
ASCENSION NO. 808

PRESSURE GEOMETRIC ALTITUDE  
MILLIBARS MSL FEET

TEMPERATURE AIR DEWPOINT  
DEGREES CENTIGRADE

REL. HUM. PERCENT

20.0 86256.9  
18.8 87540.6  
15.0 100941.2  
9.3 122518.3

-55.7  
-55.4  
-45.3  
-44.5

UPPER AIR DATA  
 3140020808  
 WHITE SANDS  
 TABLE VIII.

STATION ALTITUDE 3989.0 FT MSL  
 10 NOV. 77  
 1205 HRS MST  
 ASCENSION NO. 808

GEODETIC COORDINATES  
 32°40'43" LAT DEG  
 106°37'03" LON DEG

| GEOMETRIC ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | TEMPERATURE<br>AIR DEGREES | TEMPERATURE<br>DEWPOINT<br>CENTIGRADE | REL. HUM.<br>PERCENT | DENSITY<br>GM/CUBIC<br>METER | SPEED OF<br>SOUND<br>KNOTS | WIND DATA<br>DIRECTION<br>DEGREES(TN) | SPEED<br>KNOTS | INDEX<br>OF<br>REFRACTION |
|--------------------------------|-----------------------|----------------------------|---------------------------------------|----------------------|------------------------------|----------------------------|---------------------------------------|----------------|---------------------------|
| 3989.0                         | 888.8                 | 14.5                       | -10.2                                 | 17.0                 | 1975.1                       | 641.1                      | 330.0                                 | 8.0            | 1.000252                  |
| 4000.0                         | 888.4                 | 14.4                       | -10.2                                 | 17.1                 | 1074.9                       | 661.1                      | 330.2                                 | 8.0            | 1.000252                  |
| 4500.0                         | 872.4                 | 12.1                       | -10.5                                 | 19.5                 | 1064.3                       | 658.3                      | 337.5                                 | 8.3            | 1.000250                  |
| 5000.0                         | 856.7                 | 9.7                        | -11.0                                 | 21.9                 | 1053.8                       | 655.4                      | 344.2                                 | 8.7            | 1.000247                  |
| 5500.0                         | 841.1                 | 8.3                        | -11.5                                 | 23.1                 | 1039.9                       | 653.9                      | 350.2                                 | 9.2            | 1.000244                  |
| 6000.0                         | 825.6                 | 7.6                        | -12.1                                 | 23.3                 | 1023.4                       | 653.1                      | 348.7                                 | 9.6            | 1.000240                  |
| 6500.0                         | 810.4                 | 6.8                        | -12.6                                 | 23.4                 | 1007.2                       | 652.2                      | 337.6                                 | 10.1           | 1.000236                  |
| 7000.0                         | 795.5                 | 6.1                        | -13.1                                 | 23.6                 | 991.3                        | 651.4                      | 324.0                                 | 10.1           | 1.000232                  |
| 7500.0                         | 780.8                 | 5.4                        | -13.7                                 | 23.8                 | 975.6                        | 650.5                      | 307.5                                 | 10.3           | 1.000228                  |
| 8000.0                         | 766.4                 | 4.6                        | -14.2                                 | 23.9                 | 960.2                        | 649.6                      | 298.5                                 | 10.6           | 1.000224                  |
| 8500.0                         | 752.3                 | 4.7                        | -13.4                                 | 25.5                 | 942.1                        | 649.7                      | 293.1                                 | 10.8           | 1.000221                  |
| 9000.0                         | 738.3                 | 5.2                        | -11.9                                 | 27.8                 | 923.0                        | 650.3                      | 295.1                                 | 10.5           | 1.000218                  |
| 9500.0                         | 724.6                 | 4.2                        | -12.3                                 | 28.7                 | 908.9                        | 649.2                      | 298.7                                 | 10.1           | 1.000214                  |
| 10000.0                        | 711.1                 | 3.1                        | -13.0                                 | 29.4                 | 895.6                        | 647.9                      | 304.3                                 | 9.7            | 1.000211                  |
| 10500.0                        | 697.9                 | 2.1                        | -13.7                                 | 29.8                 | 882.3                        | 646.7                      | 308.2                                 | 10.0           | 1.000207                  |
| 11000.0                        | 684.7                 | 1.2                        | -14.9                                 | 28.7                 | 868.5                        | 645.6                      | 310.1                                 | 10.8           | 1.000203                  |
| 11500.0                        | 671.8                 | .3                         | -16.1                                 | 27.7                 | 854.9                        | 644.6                      | 310.7                                 | 11.8           | 1.000199                  |
| 12000.0                        | 659.1                 | -.5                        | -17.4                                 | 26.6                 | 841.5                        | 643.5                      | 311.2                                 | 12.8           | 1.000195                  |
| 12500.0                        | 646.7                 | -1.4                       | -18.6                                 | 25.5                 | 828.3                        | 642.5                      | 316.3                                 | 13.2           | 1.000192                  |
| 13000.0                        | 634.5                 | -1.7                       | -20.0                                 | 23.0                 | 813.6                        | 642.1                      | 321.0                                 | 13.7           | 1.000188                  |
| 13500.0                        | 622.4                 | -1.5                       | -21.9                                 | 19.2                 | 797.6                        | 642.3                      | 325.1                                 | 14.2           | 1.000183                  |
| 14000.0                        | 610.5                 | -2.1                       | -22.8                                 | 18.6                 | 784.2                        | 641.6                      | 326.1                                 | 14.8           | 1.000180                  |
| 14500.0                        | 598.8                 | -3.1                       | -23.2                                 | 19.4                 | 772.0                        | 640.4                      | 325.1                                 | 15.4           | 1.000177                  |
| 15000.0                        | 587.3                 | -4.1                       | -23.5                                 | 20.3                 | 760.1                        | 639.2                      | 323.1                                 | 16.4           | 1.000174                  |
| 15500.0                        | 576.0                 | -5.2                       | -23.9                                 | 21.1                 | 748.3                        | 637.9                      | 321.1                                 | 17.4           | 1.000171                  |
| 16000.0                        | 564.9                 | -6.2                       | -24.4                                 | 22.0                 | 736.7                        | 636.7                      | 320.2                                 | 17.7           | 1.000169                  |
| 16500.0                        | 554.0                 | -7.2                       | -24.8                                 | 22.8                 | 725.3                        | 635.5                      | 319.2                                 | 17.9           | 1.000166                  |
| 17000.0                        | 543.4                 | -8.2                       | -25.3                                 | 23.7                 | 714.1                        | 634.3                      | 318.3                                 | 17.5           | 1.000163                  |
| 17500.0                        | 532.8                 | -9.4                       | -26.0                                 | 24.5                 | 703.5                        | 632.8                      | 317.3                                 | 17.1           | 1.000161                  |
| 18000.0                        | 522.3                 | -10.8                      | -26.8                                 | 25.3                 | 693.3                        | 631.1                      | 317.7                                 | 17.5           | 1.000158                  |

UPPER AIR DATA  
3140020028  
WHITE SANDS  
TABLE VIII. (CONT)

STATION ALTITUDE 3989.00 FEET MSL  
10 NOV. 77  
1205 HRS MST  
ASCENSION NO. 808

GEODETIC COORDINATES  
32.40043 LAT DEG  
106.37033 LON DEG

| GEOMETRIC<br>ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | TEMPERATURE    |                        | REL. HUM.<br>PERCENT | DENSITY<br>GM/CUBIC<br>METER | SPEED OF<br>SOUND |       | WIND DIRECTION<br>DEGREES(TN) | WIND DATA |          | INDEX<br>OF<br>REFRACTION |
|-----------------------------------|-----------------------|----------------|------------------------|----------------------|------------------------------|-------------------|-------|-------------------------------|-----------|----------|---------------------------|
|                                   |                       | AIR<br>DEGREES | DEWPOINT<br>CENTIGRADE |                      |                              | KNOTS             | KNOTS |                               | SPEED     | KNOTS    |                           |
| 18500.0                           | 512.0                 | -12.2          | -27.7                  | 24.1                 | 683.3                        | 629.4             | 317.6 | 317.6                         | 17.8      | 1.000156 |                           |
| 19000.0                           | 501.9                 | -13.6          | -28.6                  | 26.8                 | 673.5                        | 627.7             | 315.4 | 315.4                         | 18.4      | 1.000153 |                           |
| 19500.0                           | 491.9                 | -14.8          | -29.2                  | 27.8                 | 662.8                        | 626.4             | 313.6 | 313.6                         | 19.0      | 1.000151 |                           |
| 20000.0                           | 481.9                 | -15.8          | -29.8                  | 28.8                 | 652.2                        | 625.1             | 312.3 | 312.3                         | 19.5      | 1.000148 |                           |
| 20500.0                           | 472.2                 | -16.9          | -30.4                  | 29.8                 | 641.6                        | 623.8             | 309.8 | 309.8                         | 20.1      | 1.000146 |                           |
| 21000.0                           | 462.7                 | -17.9          | -31.0                  | 30.8                 | 631.3                        | 622.5             | 306.2 | 306.2                         | 20.8      | 1.000143 |                           |
| 21500.0                           | 453.3                 | -19.0          | -31.6                  | 31.6                 | 621.2                        | 621.2             | 303.2 | 303.2                         | 21.8      | 1.000141 |                           |
| 22000.0                           | 444.2                 | -20.0          | -32.2                  | 32.7                 | 611.2                        | 619.9             | 300.6 | 300.6                         | 23.0      | 1.000139 |                           |
| 22500.0                           | 435.2                 | -21.1          | -32.8                  | 33.7                 | 601.4                        | 618.6             | 300.0 | 300.0                         | 24.1      | 1.000136 |                           |
| 23000.0                           | 426.3                 | -22.3          | -34.4                  | 32.1                 | 591.8                        | 617.1             | 300.0 | 300.0                         | 25.1      | 1.000134 |                           |
| 23500.0                           | 417.5                 | -23.5          | -36.4                  | 29.4                 | 582.5                        | 615.6             | 299.3 | 299.3                         | 25.7      | 1.000131 |                           |
| 24000.0                           | 408.8                 | -24.8          | -38.4                  | 26.8                 | 573.4                        | 614.0             | 298.5 | 298.5                         | 26.2      | 1.000129 |                           |
| 24500.0                           | 400.4                 | -26.0          | -40.5                  | 24.1                 | 564.4                        | 612.5             | 298.3 | 298.3                         | 26.5      | 1.000127 |                           |
| 25000.0                           | 392.0                 | -27.2          | -40.5                  | 26.7                 | 555.2                        | 611.0             | 298.0 | 298.0                         | 27.0      | 1.000125 |                           |
| 25500.0                           | 383.8                 | -28.4          | -40.6                  | 29.6                 | 546.2                        | 609.5             | 296.2 | 296.2                         | 28.3      | 1.000123 |                           |
| 26000.0                           | 375.6                 | -29.6          | -39.8                  | 36.1                 | 537.2                        | 608.0             | 294.4 | 294.4                         | 29.6      | 1.000121 |                           |
| 26500.0                           | 367.6                 | -30.8          | -38.6                  | 46.0                 | 528.3                        | 606.6             | 292.4 | 292.4                         | 31.1      | 1.000119 |                           |
| 27000.0                           | 359.8                 | -32.0          | -37.8                  | 56.0                 | 519.5                        | 605.1             | 290.4 | 290.4                         | 32.3      | 1.000117 |                           |
| 27500.0                           | 352.1                 | -33.1          | -37.3                  | 65.9                 | 511.0                        | 603.6             | 288.3 | 288.3                         | 33.2      | 1.000115 |                           |
| 28000.0                           | 344.6                 | -34.0          | -39.7                  | 56.3                 | 501.9                        | 602.5             | 286.1 | 286.1                         | 34.2      | 1.000113 |                           |
| 28500.0                           | 337.1                 | -35.2          | -42.1                  | 49.0                 | 493.5                        | 601.0             | 283.9 | 283.9                         | 35.3      | 1.000111 |                           |
| 29000.0                           | 329.8                 | -36.5          | -44.1                  | 45.1                 | 485.5                        | 599.3             | 281.9 | 281.9                         | 35.9      | 1.000109 |                           |
| 29500.0                           | 322.6                 | -37.8          | -45.0                  | 46.6                 | 477.5                        | 597.6             | 280.0 | 280.0                         | 36.1      | 1.000107 |                           |
| 30000.0                           | 315.5                 | -39.2          | -45.5                  | 50.3                 | 469.6                        | 596.0             | 279.4 | 279.4                         | 35.9      | 1.000105 |                           |
| 30500.0                           | 308.5                 | -40.5          | -46.1                  | 53.9                 | 461.8                        | 594.3             | 279.8 | 279.8                         | 35.5      | 1.000104 |                           |
| 31000.0                           | 301.7                 | -42.0          | -48.4                  | 49.2                 | 454.6                        | 592.3             | 281.1 | 281.1                         | 35.2      | 1.000102 |                           |
| 31500.0                           | 294.9                 | -43.1          | -50.7                  | 42.3..               | 446.4                        | 590.9             | 283.1 | 283.1                         | 35.1      | 1.000100 |                           |
| 32000.0                           | 288.2                 | -44.0          | -53.2                  | 34.8..               | 438.1                        | 589.7             | 285.1 | 285.1                         | 34.8      | 1.000098 |                           |
| 32500.0                           | 281.7                 | -44.9          | -56.0                  | 27.2..               | 429.9                        | 588.6             | 287.2 | 287.2                         | 34.4      | 1.000096 |                           |
| 33000.0                           | 275.3                 | -45.8          | -59.3                  | 19.7..               | 421.8                        | 587.4             | 290.1 | 290.1                         | 34.2      | 1.000094 |                           |

.. AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

UPPER AIR DATA  
 3140J20808  
 WHITE SANDS  
 TABLE VIII. (CONT)

STATION ALTITUDE 3989.00 FEET MSL  
 10 NOV. 77  
 ASCENSION NO. 808

GEODETIC COORDINATES  
 32.40043 LAT DEG  
 106.37033 LON DEG

TABLE VIII. (CONT)

| GEOMETRIC ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | TEMPERATURE<br>AIR DEGREES | DEWPOINT<br>CENTIGRADE | REL. HUM.<br>PERCENT | DENSITY<br>GM/CUBIC<br>METER | SPEED OF<br>SOUND<br>KNOTS | WIND DATA<br>DIRECTION (TN)<br>SPEED<br>KNOTS | INDEX<br>OF<br>REFRACTION |
|--------------------------------|-----------------------|----------------------------|------------------------|----------------------|------------------------------|----------------------------|---|---------------------------|
| 33500.0                        | 269.1                 | -46.7                      | -63.7                  | 12.2**               | 414.0                        | 586.2                      | 293.3   | 1.000192                  |
| 34000.0                        | 263.0                 | -47.6                      | -71.3                  | 4.6**                | 406.2                        | 585.0                      | 297.5   | 1.000091                  |
| 34500.0                        | 257.0                 | -48.2                      |                        |                      | 398.0                        | 584.3                      | 301.8   | 1.000089                  |
| 35000.0                        | 251.1                 | -48.2                      |                        |                      | 388.8                        | 584.3                      | 302.8   | 1.000087                  |
| 35500.0                        | 245.3                 | -48.8                      |                        |                      | 380.8                        | 583.5                      | 303.5   | 1.000085                  |
| 36000.0                        | 239.5                 | -49.5                      |                        |                      | 373.2                        | 582.6                      | 302.1   | 1.000083                  |
| 36500.0                        | 234.0                 | -50.2                      |                        |                      | 365.7                        | 581.6                      | 300.8   | 1.000081                  |
| 37000.0                        | 228.5                 | -51.0                      |                        |                      | 358.3                        | 580.7                      | 300.2   | 1.000080                  |
| 37500.0                        | 223.2                 | -51.7                      |                        |                      | 351.1                        | 579.7                      | 299.6   | 1.000078                  |
| 38000.0                        | 218.0                 | -52.4                      |                        |                      | 344.1                        | 578.8                      | 298.9   | 1.000077                  |
| 38500.0                        | 212.9                 | -53.2                      |                        |                      | 337.2                        | 577.8                      | 298.2   | 1.000075                  |
| 39000.0                        | 208.0                 | -53.9                      |                        |                      | 330.4                        | 576.9                      | 296.1   | 1.000074                  |
| 39500.0                        | 203.1                 | -54.6                      |                        |                      | 323.8                        | 575.9                      | 293.8   | 1.000072                  |
| 40000.0                        | 198.3                 | -55.3                      |                        |                      | 317.2                        | 575.0                      | 293.4   | 1.000071                  |
| 40500.0                        | 193.6                 | -55.9                      |                        |                      | 310.4                        | 574.3                      | 293.2   | 1.000069                  |
| 41000.0                        | 188.9                 | -56.4                      |                        |                      | 303.7                        | 573.5                      | 293.8   | 1.000068                  |
| 41500.0                        | 184.4                 | -57.0                      |                        |                      | 297.2                        | 572.7                      | 294.4   | 1.000066                  |
| 42000.0                        | 179.9                 | -57.6                      |                        |                      | 290.8                        | 572.0                      | 295.1   | 1.000065                  |
| 42500.0                        | 175.6                 | -58.2                      |                        |                      | 284.6                        | 571.2                      | 295.7   | 1.000063                  |
| 43000.0                        | 171.4                 | -58.7                      |                        |                      | 278.5                        | 570.4                      | 296.8   | 1.000062                  |
| 43500.0                        | 167.3                 | -59.3                      |                        |                      | 272.5                        | 569.7                      | 298.0   | 1.000061                  |
| 44000.0                        | 163.3                 | -59.9                      |                        |                      | 266.7                        | 568.9                      | 296.8   | 1.000059                  |
| 44500.0                        | 159.3                 | -60.5                      |                        |                      | 261.0                        | 568.1                      | 294.5   | 1.000058                  |
| 45000.0                        | 155.5                 | -61.0                      |                        |                      | 255.4                        | 567.4                      | 291.6   | 1.000057                  |
| 45500.0                        | 151.8                 | -61.6                      |                        |                      | 250.0                        | 566.6                      | 288.4   | 1.000056                  |
| 46000.0                        | 148.1                 | -62.0                      |                        |                      | 244.3                        | 566.1                      | 285.5   | 1.000054                  |
| 46500.0                        | 144.5                 | -62.2                      |                        |                      | 238.6                        | 565.8                      | 283.1   | 1.000053                  |
| 47000.0                        | 140.9                 | -62.4                      |                        |                      | 233.0                        | 565.5                      | 282.8   | 1.000052                  |
| 47500.0                        | 137.5                 | -62.7                      |                        |                      | 227.5                        | 565.2                      | 283.9   | 1.000051                  |
| 48000.0                        | 134.1                 | -62.9                      |                        |                      | 222.2                        | 564.9                      | 285.5   | 1.000049                  |

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.



UPPER AIR DATA  
 3140000000  
 WHITE SANDS  
 TABLE VIII. (CONT)

STATION ALTITUDE 3989.00 FEET MSL  
 10 NOV. 77 1205 HRS MST  
 ASCENSION NO. 808

GEOMETRIC ALTITUDE 3989.00 FEET MSL  
 10 NOV. 77 1205 HRS MST  
 ASCENSION NO. 808

GEODETIC COORDINATES  
 32.40043 LAT DEG  
 106.37033 LON DEG

| GEOMETRIC ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | TEMPERATURE<br>AIR DEGREES<br>CENTIGRADE | REL. HUMID.<br>PERCENT | DENSITY<br>GM/CUBIC<br>METER | SPEED OF<br>SOUND<br>KNOTS | WIND DATA<br>DIRECTION<br>DEGREES (TN) | SPEED<br>KNOTS | INDEX<br>OF<br>REFRACTION |
|--------------------------------|-----------------------|--|------------------------|------------------------------|----------------------------|--|----------------|---------------------------|
| 48500.0                        | 130.8                 | -63.1                                    |                        | 216.9                        | 564.6                      | 287.5                                  | 34.7           | 1.000048                  |
| 49000.0                        | 127.6                 | -63.3                                    |                        | 211.8                        | 564.3                      | 287.7                                  | 35.2           | 1.000047                  |
| 49500.0                        | 124.4                 | -63.8                                    |                        | 207.1                        | 563.6                      | 286.8                                  | 36.0           | 1.000046                  |
| 50000.0                        | 121.3                 | -64.6                                    |                        | 202.6                        | 562.7                      | 287.9                                  | 36.8           | 1.000045                  |
| 50500.0                        | 118.3                 | -65.3                                    |                        | 198.3                        | 561.7                      | 290.3                                  | 37.6           | 1.000044                  |
| 51000.0                        | 115.4                 | -66.0                                    |                        | 194.0                        | 560.7                      | 292.8                                  | 36.2           | 1.000043                  |
| 51500.0                        | 112.5                 | -66.7                                    |                        | 189.8                        | 559.7                      | 295.7                                  | 33.4           | 1.000042                  |
| 52000.0                        | 109.7                 | -67.5                                    |                        | 185.8                        | 558.7                      | 298.8                                  | 30.4           | 1.000041                  |
| 52500.0                        | 106.9                 | -68.2                                    |                        | 181.8                        | 557.8                      | 302.1                                  | 27.2           | 1.000040                  |
| 53000.0                        | 104.3                 | -68.9                                    |                        | 177.9                        | 556.8                      | 304.8                                  | 25.8           | 1.000040                  |
| 53500.0                        | 101.6                 | -68.9                                    |                        | 173.4                        | 556.8                      | 304.2                                  | 28.3           | 1.000039                  |
| 54000.0                        | 99.1                  | -68.8                                    |                        | 168.9                        | 557.0                      | 303.7                                  | 30.8           | 1.000038                  |
| 54500.0                        | 96.6                  | -68.4                                    |                        | 164.3                        | 557.5                      | 303.0                                  | 32.5           | 1.000037                  |
| 55000.0                        | 94.2                  | -68.0                                    |                        | 159.9                        | 558.0                      | 302.4                                  | 34.3           | 1.000036                  |
| 55500.0                        | 91.8                  | -67.7                                    |                        | 155.6                        | 558.5                      | 303.8                                  | 28.9           | 1.000035                  |
| 56000.0                        | 89.5                  | -67.3                                    |                        | 151.4                        | 559.0                      | 306.3                                  | 22.7           | 1.000034                  |
| 56500.0                        | 87.2                  | -66.9                                    |                        | 147.4                        | 559.5                      | 308.3                                  | 14.5           | 1.000033                  |
| 57000.0                        | 85.0                  | -66.7                                    |                        | 143.5                        | 559.8                      | 312.8                                  | 5.3            | 1.000032                  |
| 57500.0                        | 82.9                  | -67.1                                    |                        | 140.2                        | 559.2                      | 336.0                                  | .9             | 1.000031                  |
| 58000.0                        | 80.8                  | -67.6                                    |                        | 137.0                        | 558.5                      | 306.1                                  | 1.6            | 1.000031                  |
| 58500.0                        | 78.8                  | -68.1                                    |                        | 133.8                        | 557.9                      | 295.1                                  | 3.7            | 1.000030                  |
| 59000.0                        | 76.8                  | -68.5                                    |                        | 130.8                        | 557.3                      | 293.0                                  | 8.7            | 1.000029                  |
| 59500.0                        | 74.9                  | -68.9                                    |                        | 127.7                        | 556.8                      | 292.2                                  | 13.2           | 1.000028                  |
| 60000.0                        | 73.0                  | -68.9                                    |                        | 124.5                        | 556.8                      | 290.7                                  | 14.9           | 1.000028                  |
| 60500.0                        | 71.1                  | -68.9                                    |                        | 121.3                        | 556.8                      | 289.5                                  | 16.6           | 1.000027                  |
| 61000.0                        | 69.4                  | -68.7                                    |                        | 118.2                        | 557.1                      | 285.5                                  | 16.1           | 1.000026                  |
| 61500.0                        | 67.6                  | -68.0                                    |                        | 114.9                        | 557.9                      | 281.1                                  | 15.6           | 1.000026                  |
| 62000.0                        | 66.0                  | -67.4                                    |                        | 111.7                        | 558.8                      | 273.1                                  | 14.9           | 1.000025                  |
| 62500.0                        | 64.3                  | -66.8                                    |                        | 108.6                        | 559.6                      | 262.3                                  | 14.3           | 1.000024                  |
| 63000.0                        | 62.7                  | -66.2                                    |                        | 105.6                        | 560.5                      | 253.8                                  | 14.2           | 1.000024                  |

GEODETIC COORDINATES  
32.40043 LAT DEG  
106.37033 LON DEG

UPPER AIR DATA  
3140020808  
WHITE SANDS  
TABLE VIII. (CONT)

STATION ALTITUDE 3987.0m FEET MSL  
10 NOV. 77  
ASCENSION NO. 808  
1205 HRS MST

| GEOMETRIC<br>ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | TEMPERATURE    |                        | REL. HUM.<br>PERCENT | DENSITY<br>GM/CUBIC<br>METER | SPEED OF<br>SOUND<br>KNOTS | WIND DATA                |                | INDEX<br>OF<br>REFRACTION |
|-----------------------------------|-----------------------|----------------|------------------------|----------------------|------------------------------|----------------------------|--------------------------|----------------|---------------------------|
|                                   |                       | AIR<br>DEGREES | DEWPOINT<br>CENTIGRADE |                      |                              |                            | DIRECTION<br>DEGREES(TN) | SPEED<br>KNOTS |                           |
| 63500.0                           | 61.2                  | -65.5          |                        |                      | 102.6                        | 561.3                      | 253.0                    | 14.1           | 1.000023                  |
| 64000.0                           | 59.7                  | -64.9          |                        |                      | 99.9                         | 562.2                      | 252.2                    | 14.0           | 1.000022                  |
| 64500.0                           | 58.2                  | -64.3          |                        |                      | 97.3                         | 563.0                      | 252.5                    | 13.2           | 1.000022                  |
| 65000.0                           | 56.7                  | -63.7          |                        |                      | 94.3                         | 563.9                      | 252.9                    | 12.4           | 1.000021                  |
| 65500.0                           | 55.3                  | -63.0          |                        |                      | 91.7                         | 564.7                      | 252.7                    | 11.6           | 1.000020                  |
| 66000.0                           | 54.0                  | -62.4          |                        |                      | 89.2                         | 565.6                      | 251.7                    | 11.0           | 1.000020                  |
| 66500.0                           | 52.6                  | -61.8          |                        |                      | 86.7                         | 566.4                      | 251.4                    | 10.5           | 1.000019                  |
| 67000.0                           | 51.3                  | -61.1          |                        |                      | 84.3                         | 567.2                      | 257.5                    | 10.5           | 1.000019                  |
| 67500.0                           | 50.0                  | -60.5          |                        |                      | 82.0                         | 568.1                      | 263.4                    | 10.7           | 1.000018                  |
| 68000.0                           | 48.8                  | -60.6          |                        |                      | 80.0                         | 568.0                      | 267.4                    | 10.6           | 1.000018                  |
| 68500.0                           | 47.6                  | -60.7          |                        |                      | 78.1                         | 567.8                      | 270.8                    | 10.3           | 1.000017                  |
| 69000.0                           | 46.5                  | -60.8          |                        |                      | 76.2                         | 567.7                      | 273.9                    | 9.9            | 1.000017                  |
| 69500.0                           | 45.3                  | -60.9          |                        |                      | 74.4                         | 567.6                      | 274.8                    | 9.0            | 1.000017                  |
| 70000.0                           | 44.2                  | -61.0          |                        |                      | 72.6                         | 567.4                      | 275.8                    | 8.1            | 1.000016                  |
| 70500.0                           | 43.2                  | -61.1          |                        |                      | 70.9                         | 567.3                      | 284.3                    | 7.1            | 1.000016                  |
| 71000.0                           | 42.1                  | -61.2          |                        |                      | 69.2                         | 567.2                      | 300.6                    | 6.6            | 1.000015                  |
| 71500.0                           | 41.1                  | -61.3          |                        |                      | 67.5                         | 567.0                      | 318.2                    | 6.6            | 1.000015                  |
| 72000.0                           | 40.1                  | -61.4          |                        |                      | 65.9                         | 566.9                      | 323.2                    | 6.5            | 1.000015                  |
| 72500.0                           | 39.1                  | -61.5          |                        |                      | 64.3                         | 566.8                      | 328.2                    | 6.3            | 1.000014                  |
| 73000.0                           | 38.1                  | -61.6          |                        |                      | 62.9                         | 566.6                      | 327.3                    | 6.0            | 1.000014                  |
| 73500.0                           | 37.2                  | -61.7          |                        |                      | 61.3                         | 566.5                      | 315.0                    | 5.3            | 1.000014                  |
| 74000.0                           | 36.3                  | -61.8          |                        |                      | 59.8                         | 566.4                      | 300.3                    | 5.0            | 1.000013                  |
| 74500.0                           | 35.4                  | -61.9          |                        |                      | 58.4                         | 566.2                      | 296.5                    | 4.7            | 1.000013                  |
| 75000.0                           | 34.6                  | -61.3          |                        |                      | 56.8                         | 567.0                      | 297.5                    | 4.4            | 1.000013                  |
| 75500.0                           | 33.7                  | -60.6          |                        |                      | 55.3                         | 567.9                      | 298.6                    | 4.1            | 1.000012                  |
| 76000.0                           | 32.9                  | -60.0          |                        |                      | 53.8                         | 568.8                      | 298.2                    | 3.2            | 1.000012                  |
| 76500.0                           | 32.1                  | -59.3          |                        |                      | 52.3                         | 569.7                      | 297.3                    | 2.3            | 1.000012                  |
| 77000.0                           | 31.3                  | -58.6          |                        |                      | 50.9                         | 570.6                      | 295.9                    | 1.4            | 1.000011                  |
| 77500.0                           | 30.6                  | -57.9          |                        |                      | 49.5                         | 571.5                      | 115.9                    | .0             | 1.000011                  |
| 78000.0                           | 29.8                  | -57.4          |                        |                      | 48.2                         | 572.3                      | 115.9                    | 1.4            | 1.000011                  |

UPPER AIR DATA  
3140021.828  
WHITE SANDS  
TABLE VIII. (CONT)

STATION ALTITUDE 3989.00 FEET MSL  
10 NOV. 77  
1205 HRS MST  
ASCENSION NO. 808

GEODETIC COORDINATES  
32.40043 LAT DEG  
106.37033 LON DEG

| GEOMETRIC<br>ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | TEMPERATURE    |                        | REL. HUM.<br>PERCENT | DENSITY<br>GM/CUBIC<br>METER | SPEED OF<br>SOUND |       | WIND DATA                |                | INDEX<br>OF<br>REFRACTION |
|-----------------------------------|-----------------------|----------------|------------------------|----------------------|------------------------------|-------------------|-------|--------------------------|----------------|---------------------------|
|                                   |                       | AIR<br>DEGREES | DEWPOINT<br>CENTIGRADE |                      |                              | KNOTS             | KNOTS | DIRECTION<br>DEGREES(TN) | SPEED<br>KNOTS |                           |
| 78500.0                           | 29.1                  | -57.3          |                        |                      | 47.0                         | 572.4             |       | 121.9                    | 1.6            | 1.000010                  |
| 79000.0                           | 28.4                  | -57.2          |                        |                      | 45.8                         | 572.5             |       | 226.6                    | .7             | 1.000010                  |
| 79500.0                           | 27.7                  | -57.1          |                        |                      | 44.7                         | 572.7             |       | 268.4                    | 2.4            | 1.000010                  |
| 80000.0                           | 27.1                  | -57.0          |                        |                      | 43.6                         | 572.8             |       | 260.5                    | 3.9            | 1.000010                  |
| 80500.0                           | 26.4                  | -56.9          |                        |                      | 42.6                         | 572.9             |       | 248.2                    | 5.5            | 1.000009                  |
| 81000.0                           | 25.8                  | -56.8          |                        |                      | 41.5                         | 573.1             |       | 241.5                    | 7.3            | 1.000009                  |
| 81500.0                           | 25.2                  | -56.7          |                        |                      | 40.5                         | 573.2             |       | 241.2                    | 8.6            | 1.000009                  |
| 82000.0                           | 24.6                  | -56.6          |                        |                      | 39.5                         | 573.3             |       | 242.7                    | 9.8            | 1.000009                  |
| 82500.0                           | 24.0                  | -56.5          |                        |                      | 38.6                         | 573.5             |       | 243.8                    | 11.0           | 1.000009                  |
| 83000.0                           | 23.4                  | -56.4          |                        |                      | 37.6                         | 573.6             |       | 250.3                    | 12.3           | 1.000008                  |
| 83500.0                           | 22.9                  | -56.3          |                        |                      | 36.7                         | 573.7             |       | 263.8                    | 14.4           | 1.000008                  |
| 84000.0                           | 22.3                  | -56.2          |                        |                      | 35.8                         | 573.9             |       | 273.4                    | 17.1           | 1.000008                  |
| 84500.0                           | 21.8                  | -56.1          |                        |                      | 34.9                         | 574.0             |       | 280.2                    | 19.9           | 1.000008                  |
| 85000.0                           | 21.3                  | -56.0          |                        |                      | 34.1                         | 574.1             |       | 285.4                    | 18.7           | 1.000008                  |
| 85500.0                           | 20.7                  | -55.9          |                        |                      | 33.3                         | 574.2             |       | 291.3                    | 17.6           | 1.000007                  |
| 86000.0                           | 20.3                  | -55.8          |                        |                      | 32.4                         | 574.4             |       | 297.9                    | 16.7           | 1.000007                  |
| 86500.0                           | 19.8                  | -55.6          |                        |                      | 31.7                         | 574.6             |       | 300.9                    | 16.2           | 1.000007                  |
| 87000.0                           | 19.3                  | -55.5          |                        |                      | 30.9                         | 574.7             |       | 302.6                    | 15.7           | 1.000007                  |
| 87500.0                           | 18.8                  | -55.4          |                        |                      | 30.1                         | 574.9             |       | 304.4                    | 15.2           | 1.000007                  |
| 88000.0                           | 18.4                  | -55.1          |                        |                      | 29.4                         | 575.3             |       | 305.3                    | 15.3           | 1.000007                  |
| 88500.0                           | 18.0                  | -54.7          |                        |                      | 28.7                         | 575.8             |       | 304.7                    | 16.3           | 1.000006                  |
| 89000.0                           | 17.6                  | -54.3          |                        |                      | 27.9                         | 576.3             |       | 304.3                    | 17.3           | 1.000006                  |
| 89500.0                           | 17.1                  | -53.9          |                        |                      | 27.2                         | 576.8             |       | 303.8                    | 18.3           | 1.000006                  |
| 90000.0                           | 16.7                  | -53.5          |                        |                      | 26.6                         | 577.3             |       | 307.2                    | 19.1           | 1.000006                  |
| 90500.0                           | 16.4                  | -53.2          |                        |                      | 25.9                         | 577.8             |       | 310.3                    | 19.9           | 1.000006                  |
| 91000.0                           | 16.0                  | -52.8          |                        |                      | 25.3                         | 578.3             |       | 313.2                    | 20.8           | 1.000006                  |
| 91500.0                           | 15.6                  | -52.4          |                        |                      | 24.6                         | 578.8             |       | 315.8                    | 20.5           | 1.000005                  |
| 92000.0                           | 15.2                  | -52.0          |                        |                      | 24.0                         | 579.3             |       | 318.5                    | 19.3           | 1.000005                  |
| 92500.0                           | 14.9                  | -51.7          |                        |                      | 23.4                         | 579.8             |       | 321.5                    | 18.2           | 1.000005                  |
| 93000.0                           | 14.5                  | -51.3          |                        |                      | 22.8                         | 580.3             |       | 325.9                    | 16.8           | 1.000005                  |

STATION ALTITUDE 3989.00 FEET MSL  
 10 NOV. 77 1205 HRS MST  
 ASCENSION NO. 808

UPPER AIR DATA  
 3140020808  
 WHITE SANDS  
 TABLE VIII. (CONT)

GEODETIC COORDINATES  
 32.40043 LAT DEG  
 106.37033 LON DEG

| GEOMETRIC ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | TEMPERATURE<br>AIR DEGREES<br>CENTIGRADE | REL. HUM. PERCENT | DENSITY<br>GM/CUBIC<br>METER | SPEED OF<br>SOUND<br>KNOTS | WIND DATA                |                | INDEX<br>OF<br>REFRACTION |
|--------------------------------|-----------------------|--|-------------------|------------------------------|----------------------------|--------------------------|----------------|---------------------------|
|                                |                       |  |                   |                              |                            | DIRECTION<br>DEGREES(TN) | SPEED<br>KNOTS |                           |
| 93500.0                        | 14.2                  | -50.9                                    |                   | 22.3                         | 580.8                      | 337.1                    | 14.1           | 1.000005                  |
| 94000.0                        | 13.9                  | -50.5                                    |                   | 21.7                         | 581.3                      | 352.7                    | 12.2           | 1.000005                  |
| 94500.0                        | 13.5                  | -50.2                                    |                   | 21.2                         | 581.8                      | 12.1                     | 11.4           | 1.000005                  |
| 95000.0                        | 13.2                  | -49.8                                    |                   | 20.6                         | 582.3                      | 17.3                     | 10.4           | 1.000005                  |
| 95500.0                        | 12.9                  | -49.4                                    |                   | 20.1                         | 582.7                      | 21.4                     | 9.4            | 1.000004                  |
| 96000.0                        | 12.6                  | -49.0                                    |                   | 19.6                         | 583.2                      | 26.6                     | 8.5            | 1.000004                  |
| 96500.0                        | 12.3                  | -48.6                                    |                   | 19.1                         | 583.7                      | 17.1                     | 5.5            | 1.000004                  |
| 97000.0                        | 12.0                  | -48.3                                    |                   | 18.7                         | 584.2                      | 343.7                    | 2.9            | 1.000004                  |
| 97500.0                        | 11.8                  | -47.9                                    |                   | 18.2                         | 584.7                      | 276.9                    | 3.3            | 1.000004                  |
| 98000.0                        | 11.5                  | -47.5                                    |                   | 17.7                         | 585.2                      | 272.4                    | 3.4            | 1.000004                  |
| 98500.0                        | 11.2                  | -47.1                                    |                   | 17.3                         | 585.7                      | 271.9                    | 3.4            | 1.000004                  |
| 99000.0                        | 11.0                  | -46.8                                    |                   | 16.9                         | 586.2                      | 271.3                    | 3.3            | 1.000004                  |
| 99500.0                        | 10.7                  | -46.4                                    |                   | 16.4                         | 586.7                      | 285.5                    | 2.8            | 1.000004                  |
| 100000.0                       | 10.5                  | -46.0                                    |                   | 16.0                         | 587.1                      | 305.3                    | 2.6            | 1.000004                  |
| 100500.0                       | 10.2                  | -45.6                                    |                   | 15.6                         | 587.6                      | 326.3                    | 2.7            | 1.000003                  |
| 101000.0                       | 10.0                  | -45.3                                    |                   | 15.2                         | 588.1                      |                          |                | 1.000003                  |
| 101500.0                       | 9.7                   | -45.0                                    |                   | 14.9                         | 588.4                      |                          |                | 1.000003                  |
| 102000.0                       | 9.5                   | -44.8                                    |                   | 14.5                         | 588.7                      |                          |                | 1.000003                  |
| 102500.0                       | 9.3                   | -44.5                                    |                   | 14.2                         | 589.1                      |                          |                | 1.000003                  |



MANDATORY LEVELS  
314002080R  
WHITE SANDS  
TABLE IX.

STATION ALTITUDE 3989.00 FEET MSL  
10 NOV. 77  
ASCENSION NO. 808

GEODETTIC COORDINATES  
32.40043 LAT DEG  
106.37033 LON DEG

| PRESSURE GEOPOTENTIAL |         | TEMPERATURE                  |                        | REL. HUM.<br>PERCENT | WIND DATA                |                |
|-----------------------|---------|------------------------------|------------------------|----------------------|--------------------------|----------------|
| MILLIBARS             | FEET    | AIR<br>DEGREES<br>CENTIGRADE | DEWPOINT<br>CENTIGRADE |                      | DIRECTION<br>DEGREES(TN) | SPEED<br>KNOTS |
| 850.0                 | 5215.   | 8.7                          | -11.2                  | 23.                  | 346.9                    | 8.9            |
| 800.0                 | 6852.   | 6.3                          | -13.0                  | 24.                  | 328.7                    | 10.2           |
| 750.0                 | 8579.   | 4.8                          | -13.1                  | 26.                  | 293.4                    | 10.8           |
| 700.0                 | 10419.  | 2.2                          | -13.5                  | 30.                  | 307.8                    | 9.9            |
| 650.0                 | 12370.  | -1.2                         | -18.3                  | 26.                  | 315.1                    | 13.1           |
| 600.0                 | 14459.  | -3.0                         | -23.1                  | 19.                  | 325.1                    | 15.4           |
| 550.0                 | 16700.  | -7.6                         | -25.0                  | 23.                  | 318.8                    | 17.7           |
| 500.0                 | 19106.  | -13.9                        | -28.8                  | 27.                  | 314.8                    | 18.5           |
| 450.0                 | 21704.  | -19.4                        | -31.8                  | 32.                  | 302.0                    | 22.4           |
| 400.0                 | 24540.  | -26.1                        | -40.6                  | 24.                  | 298.3                    | 26.6           |
| 350.0                 | 27664.  | -33.5                        | -37.2                  | 69.                  | 287.5                    | 33.6           |
| 300.0                 | 31153.  | -42.4                        | -49.0                  | 48.                  | 281.9                    | 35.2           |
| 250.0                 | 35135.  | -48.2                        |                        |                      | 303.2                    | 34.7           |
| 200.0                 | 39885.  | -55.1                        |                        |                      | 293.4                    | 29.8           |
| 175.0                 | 42663.  | -58.3                        |                        |                      | 296.2                    | 33.8           |
| 150.0                 | 45819.  | -61.9                        |                        |                      | 286.0                    | 33.9           |
| 125.0                 | 49507.  | -63.7                        |                        |                      | 286.6                    | 36.2           |
| 100.0                 | 53932.  | -68.9                        |                        |                      | 303.6                    | 31.0           |
| 90.0                  | 58340.  | -67.8                        |                        |                      | 295.1                    | 3.8            |
| 70.0                  | 60964.  | -68.9                        |                        |                      | 284.2                    | 16.0           |
| 60.0                  | 64018.  | -65.1                        |                        |                      | 252.2                    | 13.7           |
| 50.0                  | 67704.  | -60.5                        |                        |                      | 266.9                    | 10.6           |
| 40.0                  | 72255.  | -61.4                        |                        |                      | 328.3                    | 6.3            |
| 30.0                  | 78133.  | -57.4                        |                        |                      | 119.0                    | 1.9            |
| 25.0                  | 81920.  | -56.4                        |                        |                      | 243.3                    | 10.4           |
| 20.0                  | 86573.  | -55.7                        |                        |                      | 302.3                    | 15.7           |
| 15.0                  | 92631.  | -51.8                        |                        |                      | 326.7                    | 16.6           |
| 10.0                  | 101383. | -45.3                        |                        |                      |                          |                |

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GEODETIC COORDINATES  
33.81920 LAT DEG  
106.66501 LON DEG

SIGNIFICANT LEVEL DATA  
J140040245  
STATION  
TABLE X.

STATION ALTITUDE 4940.00 FEET MSL  
10 NOV. 77  
ASCENSION NO. 245

| PRESSURE  | GEOMETRIC<br>ALTITUDE | TEMPERATURE    |                        | REL. HUM. |
|-----------|-----------------------|----------------|------------------------|-----------|
|           |                       | AIR<br>DEGREES | DEWPOINT<br>CENTIGRADE |           |
| MILLIBARS | MSL FEET              |                |                        | PERCENT   |
| 858.6     | 4940.0                | 10.9           | -10.5                  | 21.0      |
| 850.0     | 5217.7                | 8.7            | -11.8                  | 22.0      |
| 800.3     | 6837.2                | 3.9            | -12.1                  | 30.0      |
| 790.8     | 7154.9                | 3.0            | -17.0                  | 32.0      |
| 773.3     | 7750.9                | 4.5            | -9.6                   | 35.0      |
| 700.0     | 10391.6               | 6              | -13.1                  | 35.0      |
| 645.3     | 12523.9               | -1.6           | -20.5                  | 22.0      |
| 582.3     | 15187.2               | -5.0           | -22.9                  | 23.0      |
| 500.0     | 19040.0               | -14.7          | -26.7                  | 35.0      |
| 479.8     | 20058.0               | -17.3          | -32.1                  | 26.0      |
| 452.8     | 21471.4               | -20.5          | -30.0                  | 42.0      |
| 421.8     | 23175.1               | -25.1          | -36.9                  | 32.0      |
| 400.0     | 24430.6               | -28.0          | -34.4                  | 54.0      |
| 300.0     | 30987.0               | -43.0          | -49.2                  | 50.0      |
| 250.0     | 34956.8               | -48.9          |                        |           |
| 200.0     | 39681.7               | -55.3          |                        |           |
| 150.0     | 45593.9               | -61.7          |                        |           |
| 138.9     | 47151.2               | -61.3          |                        |           |
| 100.0     | 53678.9               | -69.7          |                        |           |
| 94.0      | 54877.4               | -71.5          |                        |           |
| 84.3      | 57004.0               | -66.4          |                        |           |
| 77.8      | 58582.0               | -68.5          |                        |           |
| 70.0      | 60656.2               | -67.0          |                        |           |
| 65.7      | 61907.9               | -66.1          |                        |           |

BEST AVAILABLE COPY

GEODETIC COORDINATES  
33.81920 LAT DEG  
106.66501 LON DEG

UPPER AIR DATA  
J14004J1245  
STATION  
TABLE XI.

STATION ALTITUDE 4940.00 FEET MSL  
10 NOV. 77 1205 HRS MST  
ASCENSION NO. 245

| GEOMETRIC ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | TEMPERATURE<br>AIR DEGREES | TEMPERATURE<br>DEWPOINT<br>CENTIGRADE | REL. HUM.<br>PERCENT | DENSITY<br>GM/CUBIC<br>METER | SPEED OF<br>SOUND<br>KNOTS | WIND DATA<br>DIRECTION (TN)<br>DEGREES | SPEED<br>KNOTS | INDEX<br>OF<br>REFRACTION |
|--------------------------------|-----------------------|----------------------------|---------------------------------------|----------------------|------------------------------|----------------------------|--|----------------|---------------------------|
| 4940.0                         | 858.6                 | 10.9                       | -10.5                                 | 21.0                 | 1051.7                       | 657.0                      | 340.0                                  | 14.0           | 1.000247                  |
| 5000.0                         | 856.7                 | 10.4                       | -10.8                                 | 21.2                 | 1051.2                       | 656.4                      | 340.1                                  | 14.0           | 1.000247                  |
| 5500.0                         | 841.1                 | 7.9                        | -11.7                                 | 23.4                 | 1041.6                       | 653.4                      | 340.5                                  | 13.7           | 1.000244                  |
| 6000.0                         | 825.6                 | 6.4                        | -11.8                                 | 25.9                 | 1027.8                       | 651.7                      | 341.0                                  | 13.4           | 1.000241                  |
| 6500.0                         | 810.4                 | 4.9                        | -11.9                                 | 28.3                 | 1014.2                       | 650.0                      | 341.5                                  | 13.1           | 1.000238                  |
| 7000.0                         | 795.4                 | 3.4                        | -12.0                                 | 31.0                 | 1000.7                       | 648.3                      | 343.4                                  | 12.1           | 1.000235                  |
| 7500.0                         | 780.6                 | 3.9                        | -10.6                                 | 33.7                 | 990.4                        | 648.8                      | 346.4                                  | 10.9           | 1.000232                  |
| 8000.0                         | 766.1                 | 4.1                        | -9.9                                  | 35.0                 | 961.1                        | 649.2                      | 349.9                                  | 10.0           | 1.000228                  |
| 8500.0                         | 751.8                 | 3.4                        | -10.6                                 | 35.0                 | 945.7                        | 648.3                      | 351.3                                  | 9.1            | 1.000224                  |
| 9000.0                         | 737.7                 | 2.7                        | -11.2                                 | 35.0                 | 930.6                        | 647.4                      | 337.9                                  | 7.9            | 1.000220                  |
| 9500.0                         | 723.9                 | 1.9                        | -11.9                                 | 35.0                 | 915.7                        | 646.5                      | 333.1                                  | 8.2            | 1.000216                  |
| 10000.0                        | 710.4                 | 1.2                        | -12.6                                 | 35.0                 | 901.0                        | 645.7                      | 339.9                                  | 10.0           | 1.000212                  |
| 10500.0                        | 697.1                 | .5                         | -13.4                                 | 34.3                 | 886.4                        | 644.8                      | 342.3                                  | 11.9           | 1.000208                  |
| 11000.0                        | 683.9                 | -0.0                       | -15.0                                 | 31.3                 | 871.4                        | 644.2                      | 342.6                                  | 13.3           | 1.000204                  |
| 11500.0                        | 671.0                 | -0.5                       | -16.7                                 | 28.2                 | 856.7                        | 643.5                      | 340.0                                  | 13.3           | 1.000199                  |
| 12000.0                        | 658.3                 | -1.1                       | -18.5                                 | 25.2                 | 842.2                        | 642.9                      | 336.5                                  | 13.1           | 1.000195                  |
| 12500.0                        | 645.9                 | -1.6                       | -20.4                                 | 22.1                 | 827.9                        | 642.2                      | 334.8                                  | 13.6           | 1.000191                  |
| 13000.0                        | 633.6                 | -2.2                       | -20.9                                 | 22.2                 | 814.0                        | 641.5                      | 335.0                                  | 15.0           | 1.000187                  |
| 13500.0                        | 621.5                 | -2.8                       | -21.3                                 | 22.4                 | 800.4                        | 640.7                      | 335.4                                  | 15.8           | 1.000184                  |
| 14000.0                        | 609.6                 | -3.5                       | -21.8                                 | 22.6                 | 787.0                        | 640.0                      | 335.4                                  | 17.0           | 1.000181                  |
| 14500.0                        | 597.9                 | -4.1                       | -22.2                                 | 22.7                 | 773.8                        | 639.2                      | 335.0                                  | 18.7           | 1.000178                  |
| 15000.0                        | 586.5                 | -4.8                       | -22.7                                 | 22.9                 | 760.8                        | 638.4                      | 333.7                                  | 19.9           | 1.000175                  |
| 15500.0                        | 575.1                 | -5.8                       | -23.1                                 | 24.0                 | 748.9                        | 637.2                      | 331.9                                  | 20.9           | 1.000172                  |
| 16000.0                        | 563.9                 | -7.0                       | -23.5                                 | 25.5                 | 737.7                        | 635.7                      | 329.1                                  | 21.5           | 1.000169                  |
| 16500.0                        | 552.8                 | -8.3                       | -23.9                                 | 27.1                 | 726.7                        | 634.2                      | 325.8                                  | 22.7           | 1.000167                  |
| 17000.0                        | 542.0                 | -9.6                       | -24.4                                 | 28.6                 | 715.9                        | 632.7                      | 322.3                                  | 24.1           | 1.000164                  |
| 17500.0                        | 531.4                 | -10.8                      | -24.9                                 | 30.2                 | 705.3                        | 631.2                      | 319.7                                  | 24.8           | 1.000162                  |
| 18000.0                        | 521.0                 | -12.1                      | -25.4                                 | 31.8                 | 694.8                        | 629.6                      | 317.7                                  | 25.3           | 1.000159                  |
| 18500.0                        | 510.8                 | -13.3                      | -26.0                                 | 33.3                 | 684.5                        | 628.1                      | 316.8                                  | 24.9           | 1.000157                  |
| 19000.0                        | 500.8                 | -14.6                      | -26.7                                 | 34.9                 | 674.4                        | 626.6                      | 316.0                                  | 24.7           | 1.000154                  |



UPPER AIR DATA  
 3140040246  
 STATION  
 TABLE XI. (CONT)

STATION ALTITUDE 4940.00 FEET MSL  
 10 NOV. 77  
 ASCENSION NO. 245

GFODETIC COORDINATES  
 33.81920 LAT DEG  
 106.66501 LON DEG

| GEOMETRIC<br>ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | TEMPERATURE<br>AIR DEGREES<br>CENTIGRADE | REL. HUM.<br>PERCENT | DENSITY<br>GM/CUBIC<br>METER | SPEED OF<br>SOUND |       | WIND DATA                |                | INDEX<br>OF<br>REFRACTION |
|-----------------------------------|-----------------------|--|----------------------|------------------------------|-------------------|-------|--------------------------|----------------|---------------------------|
|                                   |                       |  |                      |                              | KNOTS             | KNOTS | DIRECTION<br>DEGREES(TN) | SPEED<br>KNOTS |                           |
| 19500.0                           | 490.8                 | -15.9                                    | 30.9                 | 664.3                        | 625.0             |       | 315.4                    | 24.7           | 1.000151                  |
| 20000.0                           | 480.9                 | -17.2                                    | 26.5                 | 654.2                        | 623.4             |       | 315.9                    | 24.9           | 1.000148                  |
| 20500.0                           | 471.2                 | -18.3                                    | 31.0                 | 643.9                        | 622.0             |       | 316.7                    | 25.1           | 1.000146                  |
| 21000.0                           | 461.6                 | -19.4                                    | 36.7                 | 633.6                        | 620.7             |       | 317.1                    | 25.5           | 1.000144                  |
| 21500.0                           | 452.3                 | -20.6                                    | 41.8                 | 623.5                        | 619.3             |       | 316.2                    | 26.0           | 1.000142                  |
| 22000.0                           | 442.9                 | -21.9                                    | 38.9                 | 614.0                        | 617.6             |       | 314.4                    | 26.7           | 1.000139                  |
| 22500.0                           | 433.8                 | -23.3                                    | 36.0                 | 604.6                        | 615.9             |       | 311.5                    | 27.1           | 1.000137                  |
| 23000.0                           | 424.9                 | -24.6                                    | 33.0                 | 595.4                        | 614.2             |       | 308.4                    | 27.5           | 1.000134                  |
| 23500.0                           | 416.0                 | -25.9                                    | 37.7                 | 585.9                        | 612.7             |       | 304.8                    | 27.4           | 1.000132                  |
| 24000.0                           | 407.3                 | -27.0                                    | 46.5                 | 576.3                        | 611.3             |       | 301.0                    | 26.9           | 1.000130                  |
| 24500.0                           | 398.8                 | -28.2                                    | 54.0                 | 566.9                        | 609.9             |       | 297.0                    | 26.4           | 1.000128                  |
| 25000.0                           | 390.1                 | -29.3                                    | 53.7                 | 557.2                        | 608.4             |       | 293.7                    | 27.3           | 1.000126                  |
| 25500.0                           | 381.7                 | -30.4                                    | 53.3                 | 547.7                        | 607.0             |       | 291.6                    | 28.3           | 1.000124                  |
| 26000.0                           | 373.4                 | -31.6                                    | 53.0                 | 538.3                        | 605.6             |       | 291.9                    | 29.3           | 1.000121                  |
| 26500.0                           | 365.3                 | -32.7                                    | 52.7                 | 529.2                        | 604.1             |       | 295.4                    | 29.9           | 1.000119                  |
| 27000.0                           | 357.4                 | -33.9                                    | 52.4                 | 520.2                        | 602.7             |       | 301.2                    | 30.4           | 1.000117                  |
| 27500.0                           | 349.6                 | -35.0                                    | 52.1                 | 511.4                        | 601.2             |       | 304.9                    | 31.1           | 1.000115                  |
| 28000.0                           | 342.0                 | -36.2                                    | 51.8                 | 502.7                        | 599.8             |       | 306.5                    | 31.5           | 1.000113                  |
| 28500.0                           | 334.6                 | -37.3                                    | 51.5                 | 494.2                        | 598.3             |       | 304.1                    | 30.8           | 1.000111                  |
| 29000.0                           | 327.3                 | -38.5                                    | 51.2                 | 485.8                        | 596.9             |       | 301.5                    | 30.0           | 1.000109                  |
| 29500.0                           | 320.2                 | -39.6                                    | 50.9                 | 477.6                        | 595.4             |       | 299.0                    | 29.2           | 1.000107                  |
| 30000.0                           | 313.3                 | -40.7                                    | 50.6                 | 469.5                        | 593.9             |       | 299.9                    | 29.2           | 1.000105                  |
| 30500.0                           | 306.5                 | -41.9                                    | 50.3                 | 461.6                        | 592.5             |       | 301.4                    | 29.3           | 1.000103                  |
| 31000.0                           | 299.8                 | -43.0                                    | 49.8..               | 453.8                        | 591.0             |       | 303.5                    | 29.7           | 1.000102                  |
| 31500.0                           | 293.0                 | -43.8                                    | 43.5..               | 445.0                        | 590.1             |       | 302.9                    | 29.6           | 1.000099                  |
| 32000.0                           | 286.4                 | -44.5                                    | 37.2..               | 436.3                        | 589.1             |       | 301.4                    | 29.4           | 1.000097                  |
| 32500.0                           | 279.9                 | -45.2                                    | 30.9..               | 427.8                        | 588.1             |       | 300.2                    | 29.9           | 1.000096                  |
| 33000.0                           | 273.5                 | -46.0                                    | 24.6..               | 419.4                        | 587.2             |       | 299.5                    | 30.9           | 1.000094                  |
| 33500.0                           | 267.3                 | -46.7                                    | 18.3..               | 411.3                        | 586.2             |       | 299.7                    | 32.9           | 1.000092                  |
| 34000.0                           | 261.2                 | -47.5                                    | 12.1..               | 403.2                        | 585.2             |       | 300.5                    | 34.4           | 1.000090                  |

.. AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.



UPPER AIR DATA  
J140043245  
STATION  
TABLE XI. (CONT)

STATION ALTITUDE 4940.00 FEET MSL  
10 NOV. 77  
ASCENSION NO. 245

GEODETIC COORDINATES  
33.81920 LAT DEG  
106.66501 LON DEG

| GEOMETRIC ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | TEMPERATURE<br>AIR DEGREES<br>DEWPOINT DEGREES<br>CENTIGRADE | REL. HUM.<br>PERCENT | DENSITY<br>GM/CUBIC<br>METER | SPEED OF<br>SOUND<br>KNOTS | WIND DATA                |                | INDEX<br>OF<br>REFRACTION |
|--------------------------------|-----------------------|--|----------------------|------------------------------|----------------------------|--------------------------|----------------|---------------------------|
|                                |                       |  |                      |                              |                            | DIRECTION<br>DEGREES(TN) | SPEED<br>KNOTS |                           |
| 34500.0                        | 255.3                 | -48.2  | 5.8..                | 395.4                        | 584.3                      | 301.6                    | 35.6           | 1.000088                  |
| 35000.0                        | 249.5                 | -49.0  |                      | 387.7                        | 583.3                      | 303.1                    | 35.7           | 1.000086                  |
| 35500.0                        | 243.7                 | -49.6  |                      | 379.8                        | 582.4                      | 303.9                    | 35.6           | 1.000085                  |
| 36000.0                        | 238.0                 | -50.3  |                      | 372.0                        | 581.6                      | 303.3                    | 34.8           | 1.000083                  |
| 36500.0                        | 232.4                 | -51.0  |                      | 364.5                        | 580.7                      | 302.7                    | 34.7           | 1.000081                  |
| 37000.0                        | 227.0                 | -51.7  |                      | 357.3                        | 579.8                      | 302.3                    | 34.9           | 1.000080                  |
| 37500.0                        | 221.7                 | -52.3  |                      | 349.8                        | 578.9                      | 303.2                    | 35.0           | 1.000078                  |
| 38000.0                        | 216.5                 | -53.0  |                      | 342.7                        | 578.0                      | 304.4                    | 34.8           | 1.000076                  |
| 38500.0                        | 211.5                 | -53.7  |                      | 335.7                        | 577.1                      | 305.3                    | 33.2           | 1.000075                  |
| 39000.0                        | 206.5                 | -54.4  |                      | 328.9                        | 576.2                      | 305.4                    | 32.0           | 1.000073                  |
| 39500.0                        | 201.7                 | -55.1  |                      | 322.2                        | 575.3                      | 304.2                    | 31.6           | 1.000072                  |
| 40000.0                        | 196.9                 | -55.6  |                      | 315.4                        | 574.6                      | 303.0                    | 31.7           | 1.000070                  |
| 40500.0                        | 192.2                 | -56.2  |                      | 308.4                        | 573.8                      | 301.8                    | 32.1           | 1.000069                  |
| 41000.0                        | 187.6                 | -56.7  |                      | 301.9                        | 573.1                      | 299.9                    | 33.2           | 1.000067                  |
| 41500.0                        | 183.1                 | -57.3  |                      | 295.4                        | 572.4                      | 297.9                    | 34.2           | 1.000066                  |
| 42000.0                        | 178.7                 | -57.8  |                      | 289.0                        | 571.7                      | 296.0                    | 35.3           | 1.000064                  |
| 42500.0                        | 174.4                 | -58.4  |                      | 282.8                        | 571.0                      | 295.3                    | 36.7           | 1.000063                  |
| 43000.0                        | 170.2                 | -58.9  |                      | 276.7                        | 570.2                      | 295.5                    | 38.3           | 1.000062                  |
| 43500.0                        | 166.1                 | -59.4  |                      | 270.7                        | 569.5                      | 296.1                    | 40.4           | 1.000060                  |
| 44000.0                        | 162.1                 | -60.0  |                      | 264.9                        | 568.8                      | 296.5                    | 42.2           | 1.000059                  |
| 44500.0                        | 158.2                 | -60.5  |                      | 259.2                        | 568.1                      | 296.2                    | 41.8           | 1.000058                  |
| 45000.0                        | 154.4                 | -61.1  |                      | 253.6                        | 567.4                      | 296.0                    | 42.0           | 1.000056                  |
| 45500.0                        | 150.7                 | -61.6  |                      | 248.1                        | 566.6                      | 296.2                    | 43.1           | 1.000055                  |
| 46000.0                        | 147.0                 | -61.6  |                      | 242.1                        | 566.6                      | 295.9                    | 44.2           | 1.000054                  |
| 46500.0                        | 143.4                 | -61.5  |                      | 236.1                        | 566.8                      | 295.4                    | 45.4           | 1.000053                  |
| 47000.0                        | 139.9                 | -61.3  |                      | 230.2                        | 567.0                      | 296.0                    | 43.0           | 1.000051                  |
| 47500.0                        | 136.5                 | -61.7  |                      | 224.9                        | 566.4                      | 296.5                    | 40.3           | 1.000050                  |
| 48000.0                        | 133.1                 | -62.4  |                      | 220.0                        | 565.6                      | 296.1                    | 37.3           | 1.000049                  |
| 48500.0                        | 129.8                 | -63.0  |                      | 215.2                        | 564.7                      | 295.1                    | 35.3           | 1.000048                  |
| 49000.0                        | 126.6                 | -63.7  |                      | 210.5                        | 563.8                      | 293.3                    | 34.5           | 1.000047                  |

.. AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

UPPER AIR DATA  
3145040.245  
STATION  
TABLE XI. (CONT)

STATION ALTITUDE 4940.00 FEET MSL  
10 NOV. 77  
ASCENSION NO. 245

GEODETIC COORDINATES  
33° 81' 20" LAT DEG  
106° 66' 50" LONG DEG

| GEOMETRIC ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | TEMPERATURE<br>AIR DEGREE<br>CENTIGRADE | REL. HUM.<br>PERCENT | DENSITY<br>GM/CUBIC<br>METER | SPEED OF<br>SOUND<br>KNOTS | WIND DATA<br>DIRECTION<br>DEGREES (TN) | SPEED<br>KNOTS | INDEX<br>OF<br>REFRACTION |
|--------------------------------|-----------------------|---|----------------------|------------------------------|----------------------------|--|----------------|---------------------------|
| 49500.0                        | 123.4                 | -64.3                                   |                      | 205.9                        | 563.0                      | 294.4                                  | 34.7           | 1.000046                  |
| 50000.0                        | 120.3                 | -65.0                                   |                      | 201.4                        | 562.1                      | 296.6                                  | 35.5           | 1.000045                  |
| 50500.0                        | 117.4                 | -65.6                                   |                      | 197.0                        | 561.2                      | 296.4                                  | 35.2           | 1.000044                  |
| 51000.0                        | 114.4                 | -66.3                                   |                      | 192.7                        | 560.4                      | 296.1                                  | 34.8           | 1.000043                  |
| 51500.0                        | 111.6                 | -66.9                                   |                      | 188.5                        | 559.5                      | 297.0                                  | 34.8           | 1.000042                  |
| 52000.0                        | 108.8                 | -67.5                                   |                      | 184.4                        | 558.6                      | 298.2                                  | 34.6           | 1.000041                  |
| 52500.0                        | 106.1                 | -68.2                                   |                      | 180.4                        | 557.7                      | 303.6                                  | 32.3           | 1.000040                  |
| 53000.0                        | 103.5                 | -68.8                                   |                      | 176.4                        | 556.9                      | 308.7                                  | 30.3           | 1.000039                  |
| 53500.0                        | 100.9                 | -69.5                                   |                      | 172.6                        | 556.0                      | 307.4                                  | 28.5           | 1.000038                  |
| 54000.0                        | 98.4                  | -70.2                                   |                      | 168.8                        | 555.0                      | 305.6                                  | 27.2           | 1.000037                  |
| 54500.0                        | 95.8                  | -70.9                                   |                      | 165.1                        | 554.0                      | 302.4                                  | 27.9           | 1.000036                  |
| 55000.0                        | 93.4                  | -71.2                                   |                      | 161.1                        | 553.6                      | 301.2                                  | 27.6           | 1.000035                  |
| 55500.0                        | 91.1                  | -70.0                                   |                      | 156.1                        | 555.3                      | 302.5                                  | 25.9           | 1.000034                  |
| 56000.0                        | 88.7                  | -68.8                                   |                      | 151.3                        | 556.9                      | 300.0                                  | 23.0           | 1.000033                  |
| 56500.0                        | 86.5                  | -67.6                                   |                      | 146.6                        | 558.5                      | 294.1                                  | 19.6           | 1.000032                  |
| 57000.0                        | 84.3                  | -66.4                                   |                      | 142.1                        | 560.2                      | 282.5                                  | 15.9           | 1.000031                  |
| 57500.0                        | 82.2                  | -67.1                                   |                      | 138.9                        | 559.3                      | 265.5                                  | 13.3           | 1.000030                  |
| 58000.0                        | 80.1                  | -67.7                                   |                      | 135.9                        | 558.4                      | 270.8                                  | 13.7           | 1.000029                  |
| 58500.0                        | 78.1                  | -68.4                                   |                      | 132.9                        | 557.5                      | 273.1                                  | 14.3           | 1.000028                  |
| 59000.0                        | 76.2                  | -68.2                                   |                      | 129.5                        | 557.7                      | 298.4                                  | 16.3           | 1.000027                  |
| 59500.0                        | 74.2                  | -67.8                                   |                      | 126.0                        | 558.2                      | 311.1                                  | 18.9           | 1.000026                  |
| 60000.0                        | 72.4                  | -67.5                                   |                      | 122.6                        | 558.7                      | 316.0                                  | 18.7           | 1.000025                  |
| 60500.0                        | 70.6                  | -67.1                                   |                      | 119.3                        | 559.2                      |  |                |                           |
| 61000.0                        | 68.8                  | -66.8                                   |                      | 116.1                        | 559.7                      |  |                |                           |
| 61500.0                        | 67.1                  | -66.4                                   |                      | 113.0                        | 560.2                      |  |                |                           |

MANDATORY LEVELS  
3140040245  
STATION  
TABLE XII.

STATION ALTITUDE 4940.00 FEET MSL  
10 NOV. 77  
1215 HRS MST  
ASCENSION NO. 245

GEODETIC COORDINATES  
33.81920 LAT DEG  
106.66501 LON DEG

| PRESSURE GEOPOTENTIAL |        | TEMPERATURE                  |                        | REL. HUM.<br>PERCENT | WIND DATA                |                |
|-----------------------|--------|------------------------------|------------------------|----------------------|--------------------------|----------------|
| MILLIBARS             | FEET   | AIR<br>DEGREES<br>CENTIGRADE | DEWPOINT<br>CENTIGRADE |                      | DIRECTION<br>DEGREES(TN) | SPEED<br>KNOTS |
| 850.0                 | 5217.  | 8.7                          | -11.8                  | 22.                  | 340.3                    | 13.8           |
| 800.0                 | 6847.  | 3.9                          | -12.1                  | 30.                  | 342.7                    | 12.5           |
| 750.0                 | 8567.  | 3.3                          | -10.7                  | 35.                  | 349.6                    | 8.9            |
| 700.0                 | 10393. | .6                           | -13.1                  | 35.                  | 342.0                    | 11.5           |
| 650.0                 | 12337. | -1.4                         | -19.7                  | 23.                  | 334.8                    | 13.2           |
| 600.0                 | 14419. | -4.0                         | -22.2                  | 23.                  | 335.1                    | 18.5           |
| 550.0                 | 16654. | -8.6                         | -24.0                  | 27.                  | 324.5                    | 23.2           |
| 500.0                 | 19050. | -14.7                        | -26.7                  | 35.                  | 315.9                    | 24.7           |
| 450.0                 | 21636. | -20.9                        | -30.6                  | 41.                  | 315.6                    | 26.2           |
| 400.0                 | 24450. | -28.0                        | -34.4                  | 54.                  | 297.1                    | 26.5           |
| 350.0                 | 27552. | -35.0                        | -41.3                  | 52.                  | 305.5                    | 31.3           |
| 300.0                 | 31022. | -43.0                        | -49.2                  | 50.                  | 303.7                    | 29.7           |
| 250.0                 | 35002. | -48.9                        |                        |                      | 303.2                    | 35.7           |
| 200.0                 | 39743. | -55.3                        |                        |                      | 303.4                    | 31.6           |
| 175.0                 | 42519. | -58.3                        |                        |                      | 295.3                    | 37.0           |
| 150.0                 | 45677. | -61.7                        |                        |                      | 296.1                    | 43.7           |
| 125.0                 | 49373. | -64.0                        |                        |                      | 294.3                    | 34.7           |
| 100.0                 | 53797. | -69.7                        |                        |                      | 306.0                    | 27.1           |
| 80.0                  | 58176. | -67.8                        |                        |                      | 274.1                    | 14.1           |
| 70.0                  | 62811. | -67.0                        |                        |                      |                          |                |

.. AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

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